

De Viribus Medicamentorum:

O R, A

TREATISE
Of the Virtue and Energy of
MEDICINES.
CONTAINING

An ample Account of all Medicines whatsoever,
whether Physical or Chirurgical, Internal or Exter-
nal; with their several Qualities, and proper Doses:
As also Mathematical Observations on the Nature of
Solids and Fluids, with respect to Human Bodies,
with an accurate Account of the Properties of the
Blood, of its Consistency, and Laws of Motion: The
whole being interspers'd with many curious Remarks
never before Publish'd.

Written in *L A T I N*

By the Learned **HERMANN BOERHAAVE**,
Now Professor of Physick in the University
of *L E Y D E N*.

*Machaon, whose Experience we adore,
Great, as your matchless Merits, is your power:
At your approach, the baffled Tyrant, Death
Breaks his keen shafts, and Grinds his gnashing Teeth.
Garth's Dis.*

L O N D O N:

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T H E
P R E F A C E.



HE writing Prefaces
is at this Time so much
in *Vogue*, that scarce
any Book ventures *A-*
broad without one; and should
any one be so bold, it wou'd be
thought by a great many, a Con-
sciousness in the Publisher, of
the want of *Merit* in his Per-
formance.

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'TIS this Custom, has reduc'd me to the Necessity of writing one at this present; a trouble I wou'd otherwise gladly have spared, both the Reader, and myself.

THE following Treatise is the Genuine Off-spring of the Learned Hermann Boerhaave, Professor of Physick in the University of Leyden; a Name so deservedly famous in the Republick of Literature, for his many invaluable Performances, as is sufficient (one would think) to recommend any Thing which should bear so illustrious a Title: And this Tract being no ways Inferior to any of his former,

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mer, either as to its Erudition, or Usefulness, it will (I hope) meet with equal Encouragement.

THE Learning and Modesty, the Candour and Ingenuity, of this Great Man, shine with so conspicuous a Lustre throughout this Book, as must give a very different Notion of Physicians to what some People seem lately to have entertain'd, as if knowing a few hard Terms, and the Form of writing a Recipe, were all that is to be required from them: And indeed the kind Reception some have met with from the Town, and the Figure

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gure they make who are no better qualified, serves to confirm others in this Error, to the utter Ruin, and Discouragement of Learning, and real Practitioners. Our incomparable Author has endeavoured to expose such Pretenders, and to Remedy an Evil so dangerous in its Consequence, and so destructive to the Health of Mankind, by shewing what every Physician ought to understand.

IN Order to this, as he has in his other Works explain'd the other Branches of this most Noble Art, so in this he has taken in the whole Materia Medica

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Medica, a Part so absolutely necessary, as none of the Faculty but ought to be Masters of it.

THIS Book therefore is a Treatise of, The Virtue and Energy of Medicines in general, and has taken in its Compass all Medicines of what Nature so ever, whether Emetics, Catharticks, Sudorificks, or Alteratives; &c. and is indeed the most ample Tract of the Kind that ever was yet publish'd. By this Work a young Practitioner is instructed in what Distempers such and such Remedies are proper to be applied, in what Method, and what the Dose; and sure the
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Authority of this Great Man (who never speaks but upon mature Experience) is not to be contested, in Cases of this Nature.

WHAT therefore has been already said, I think sufficiently proves the great Use and Advantage, which may be made of this Book; but if any one should still question it, I shall add this Example to illustrate it. Anatomy is a Branch of Physick, which all Doctors ought to understand, but yet it is not so necessary as what this Work treats of; for suppose the most excellent Anatomist to be sent for to a Patient, he shall not, by
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all his Art, be able either to tell what is the Distemper, or how to cure it, though he is perfectly acquainted with the Structure of a human Body; but let him consult our Author and he will no longer be at a loss to proceed. Likewise in Chymistry, though a Man knows all the Compositions of his Medicines, yet if he knows not their Property, and what is a fit Dose, of what Use is his Skill? So that indeed the Knowledge of the Nature, and Efficacy, of what we prescribe is not only necessary, but all the other Branches of this Art, are perfectly useless without it.

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THE rendring of this Knowledge compleat, was the Design of the great Boerhaave in compiling this Work, and I thought the translating it into English, would be no unacceptable Present to the Learned World: In which I have endeavour'd to acquit myself with all Faithfulness to my Author, and to put it in a Method as concise, and clear, as the Nature of the Thing would admit of for the Benefit of the Readers; and if it meets with their Approbation, I shall not grudge my Labour. This Piece then (in my Opinion) is an invaluable Treasure, which contains not only all that has been said heretofore
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upon this Subject, but also a great many new and curious Observations, that have never before been taken Notice of by any former Author ; and is so very copious that whoever reads it may be without any other : Each Chapter, nay, each Page has something shining, some Masterly Stroke, of this great Man's.

THE prodigious Reading, and indefatigable Industry, that runs through all his Works, are no where more eminent than in this Performance, where indeed they wou'd strike one with Astonishment and Admiration, and to give him his just Character, he may aptly be called Sæculi nostri Decus & Oprobrium. By the help of this

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Treatise, any young Beginner may save two or three Years Study and yet arrive at greater Perfection in his Profession than any other who has not the same Benefit and Advantage. By the Help of this he will understand the Force of all Medicines whether Simple or Compound, whether Physical or Chirurgical, Internal or External. In this he is also instructed in the Solidity of the Body, and the Properties of the Blood; its Circulation and Laws of Motion.

HAVING thus considered the Book in general, I shall now take Notice of the Accuracy of the Method, wherewith he treats each Subject in particular; and
how

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how the Reader may make his Observations thereupon most beneficial to himself and the Publick. In Order to this it is requisite to observe, 1st, The Disposition of the Chapters. 2^{dly}, The Division of the Medicines into their several Classes. And 3^{dly}, The Inferences he draws and Corollaries he lays down. As to the first, Having pre-acquainted you with the Nature of the Body, either as to its Solid or Fluid Particles, he gives you a Chapter of Medicines in general, in which he tells you the various Effects various Medicines will have upon Application, this being premised, he distinguishes them under several Heads or Denominations as for
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stance into Medicines Attenuating, Incrassating, those exciting Acrimony, Asswaging, Altering, Diluting, Coagulating and Moving Medicines. These are again divided according to their Effects into Apophlegmatizing, Expectorating, Medicines purging by the Alvus, Vomitories, Diureticks, Sudorificks, and Uterines, and each of these is again subdivided into several distinct Classes, which it wou'd be tedious to mention here.

As to the Second, I can't better explain it then by the Twenty-first Chapter of Medicines Purging by the Alvus, where they are distinguished according
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to their peculiar Manner of Operation on their several Patients; as Euoproticks, Phlegmagogues, Chologogues, Hydrogogues and Melanogogues, each of which he handles after so clear and ample a Manner, as must at once instruct and delight every candid Reader: And indeed this Chapter is a Treasure in itself, which will merit diligent and serious Perusal.

THE last Thing to be consider'd, is, the Observations and Corollaries wherewith the Book is interspers'd, which I wou'd recommend to the Curious, to ground well in their Memories, as having no where their equal
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in any other Author whatever; and whoever is Master of them, will find Few to excel him in this most material Branch of the Faculty.

THUS having considered the Nature of the Book, and the Character of the Author, that Ornament and Glory of his Profession, I shall briefly explain what Medicine is, as an Introduction to this Work because the Author falls immediately upon the Matter without any previous Account of the Meaning of the Thing itself.

*A MEDICINE, is that by the Operation of which we are eas'd
of*

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of any Distemper, from the Latin Medeor to cure; and therefore whatsoever has not that Effect, though dignified with never so pompous a Name, is not a Medicine; and on the contrary, whatever does give Relief to our Indisposition, is a Medicine, though it be never so innocent, nay though it be only Water-gruel.

Now although this Branch of Physick be so highly and absolutely necessary, yet it is not alone sufficient without other Helps; for Instance, though I know the Virtue and Efficacy of Hippocacoana, and Tartarum Emeticum, and that they are

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admirable Remedies for a foul Stomach, yet if I don't know, by the correspondent Symptoms, when the Stomach is foul, of what use is my Skill? Now this Part is term'd Diagnostick; for the perfecting a young Student in which, I wou'd recommend to his Perusal, our Author's incomparable Method of studying Physick, where he will be informed what Books to read upon every Branch of the Faculty. Anatomy also is very useful, it being the Knowledge of the Structure of a human Body, because by that you may judge what constituent Particles are fittest to operate upon the Part affected.

AND

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AND now having explain'd the Nature of Medicine in general, and what it is, and the Character of our unequall'd Author, I shall proceed to give an Account of my Part in this Performance with relation to the Translation, and so conclude.

I SHALL only say then, that I have endeavour'd, for the Benefit of the Reader, to acquit myself of this Undertaking, in as clear and easy a Stile, as the Nature of the Thing, and a strict Adherence to the meaning of the Original wou'd admit of; with this Reserve, that I have still retain'd the Greek Terms
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of Art, that I might not prostitute so noble a Work ad captum Vulgi, to the Use of Quacks, it being to be presumed, that every regular Student is an absolute Master of the Greek Language, since it is a known Axiom, that Ubi definit Philosophus, ibi incipit Medicus. So wishing you to make a good Use of it, I bid you heartily Farewell.



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A

TREATISE

Concerning the

Virtue and Energy

O F

MEDICINES.

First, **T**HIS comprehends all Bodies which are termed Medicaments or Medicines; whether they be Internally or Externally applied.

Secondly, It is a Physical Consideration of the Alterations or Changes produced in Human Bodies from the Efficacy of Medicine, which is done, (1st.) By Experiments of Simple Infusion. (2^{ly}.) By Experiments of Mixture, because by those means the Solid Particles of a Medicine do so immediately

act one upon the other, that they are the Causes of various Alterations and Changes; an Instance of which we have in a small Fibre, which being infused in strong Spirit of Wine, by the mediation of proper heat swells and plumps up to a great Degree. This and the like may be called *Chymical Tryals*. And (3^{ly}.) By Anatomical Experiments.

Thirdly, ARE explained the Alterations our Bodies undergo after Medicines have been given; which Changes or Alterations are term'd Medical; to the Knowledge of which *Anatomy*, which is a careful and diligent Inspection into dead Bodies, very much contributes. By this strict Examination of Bodies, Medicines are reduc'd to certain determinate Rules.

Fourthly, WE shall shew the Manner of making choice of, and preparing Medicaments, with the Forms of prescribing them thro' the whole Course of *Physick*.

CHAP. I.

Proposition I. **T**HAT our Bodies consist of a Composition of innumerable little Streams and Channels, which are so closely joyn'd and complicated within each other, and all their Particles have such a mutual Communication together (like Points in a Mathematical Line) that the Touch of one small Fibre puts all the rest in Motion, which is exemplify'd by those minute Vessels of Perspiration described by *Sanctorius*. *Malpighius* also hath plainly shewen how the ultimate excretory Duct of the minutest *Glandule*, situated in the *Cuticula*, is connected with the *Glandule* of some Artery in the *Cutis*, that Artery with the Heart, the Heart with the Brain, and the Brain with its Membranes.

Prop. II.

Prop. II. THAT all the Cavities of those little Channels of which our Bodies consist, have a Passage out of the left Ventricle of the Heart, so that the Cavity of the left Ventricle of the Heart, is extended to the *Aorta* or great Artery which spreads itself to all the extream Parts of the Body.

Prop. III. THAT all Liquids contained in any hollow Part of the Body, have a return to the left Ventricle of the Heart in a Mathematical Continuity, except the excretory Vessels and their Glandules.

THIS Proposition is demonstrated from Microscopical Observations. All the excretory Vessels of the Body are excepted, whose Structure is such, that their extream Points are exposed and lie open to the Circumambient Air. Such for Instance are those Vessels whereby we sweat and perspire, the *Glandula lacrymalis* which emits an unctuous as well as watery Fluid; the Vessels of the Nostrils which discharge a *Mucous*, and those of the *Oesophagus* together with the Vessels of the Stomach. The Vessels of the Intestines, and the seminal Vessels have peculiar Excretions, suitable to the Nature of their proper Emunctories.

Prop. IV. THAT all the Cavities either of the Receptacles or Channels in the Body, contain certain liquid Substances of proper Consistences and Qualities, when the Body is said to be in Health. Hence follows this Corollary, that as there is a strict Union or Communication between the Vessels of the Body, so likewise is there between the Liquids contain'd in those Vessels.

Prop. V. THAT all these Liquids, except those of the excretory Vessels, return to the Heart, the Fountain from whence they sprung.

Prop. VI. THAT as long as these Liquids move

within their Channells in the Course before describ'd, the Body is said to be Living; as soon as that Motion fails, Death ensues.

Prop. VII. THAT if this Motion (the Continuity of which is called Life) passes through all the Cavities of the Body with equal Impulse, then is that Body said to enjoy a due State of Health.

Prop. VIII. THAT any State or Condition of the Solids or Fluids which hinders that equal regular Motion (which in the foregoing Proposition we affirm'd to constitute Health, from what cause soever that Impediment proceeds) shall be called a Disease or Sicknes in the Body.

Prop. IX. THAT the End of all Diseases is Death; because then that Motion is entirely determin'd.

Prop. X. THAT to perform a Cure, is to remove the Causes which hinder the Equality and Regularity of this Motion.

Prop. XI. THAT every Thing may be term'd a Medicine, which, by being virtually apply'd to a Distemper, removes this Inequality of Motion (the Cause of all Diseases) and restores that equal Flowing of the Humours on which Health depends.

Prop. XII. THAT therefore every Body that can receive the Benefit of Physick, may be restor'd by it; because the Operation of all Medicines depends upon the regular Motion of the Solids and Fluids of the Body; hence follows this Corollary, That no Medicines can have any Effect upon a dead Body.

Prop. XIII. THAT therefore all Medicines, in their ultimate Operation, act solely and properly by a mechanical Effect. That is call'd a mechanical Action, which depends upon the Figure and Motion of the Bulk or Parts of the Body. A mechanical Effect is that which supposes the Figure and Motion of the Parts of the Body to be alter'd or chang'd.

Prop. XIV. THAT the Action which excites or provokes

provokes the Operation of a Medicine, is not always mechanical, that is, a Disease fix'd in the Body, which can be cured by none but corporeal Means; for there are also incorporeal Means, as for Instance, in the Passion of the Mind, the Force of Thought is not mechanical, but purely spiritual.

THOSE are term'd corporeal Medicines, which act immediately upon the Body. Secondary Causes are those, by the Application of which a Distemper is cured. Every Alteration or Change contains something of Reality wrought by secondary Causes. Whatsoever therefore is capable or apt to alter and change the disorder'd State of the Solids and Fluids, is term'd a Remedy. Seeing then (as I have shew'd before) some Means are incorporeal, others corporeal, I shall treat in the first Place of corporeal Means which act immediately upon the Body, by changing either the Situation or Motion of its Parts.

CHAP. II.

1. **I**N the first Place I understand by the Efficacy of a corporeal Medicine, any physical Body whatsoever, by the Application of which that which I term'd a Disease, in the foregoing Chapter, is remov'd.

2. A DISEASE or Sickness, is that State or Condition of Body, wherein the vital or natural Action is hurt or injur'd: the Cause of the Disease is either in the Liquids or Solids alone, and sometimes in both together: As the Causes therefore are different, so the Medicines to be administred ought to be different.

3. THERE are three Ways whereby the Solids of our Bodies may be alter'd. First, by communica-

ring Motion to the Liquids contain'd in them. Secondly, By Bodies circumambient. And thirdly, By Contract-ability.

4. FLUIDS are capable of being chang'd, either by a Motion arising from the very Nature of a Fluid, or by some Property of Alteration communicated from without; for Fluids are not only moveable in themselves, but likewise (as the *Naturalists* observe) are often put into Motion.

THERE is no Liquid in our Bodies, in a natural State, but what is contain'd in the Vessels; therefore all Change which is communicated to Fluids, is either communicated from without by the Relaxation of the Vessels, or by some new Body let into the Cavity of the Vessels *à tergo*.

CHAP. III.

Concerning Solids.

THIS Chapter explains the material Parts of Solids to which Medicines ought to be apply'd. By the Name or Definition of a Vessel, we understand a Body that contains within itself (or its Superficies) a hollow Space in which a Liquid may reside separate from the other Parts of the Body. We term that a vasculous Part of the Body, which consists of several Vessels.

Prop. I. THAT there is no sensible Point in the whole Body but what is vasculous. This Proposition is evident from Experiments. There is no Part of the Body can be stung by a Gnat or Fly, but immediately something liquid gushes out, which may be seen by a Microscope. This Proposition is likewise manifest from the Application of Vesicatories, and the Administration of cauterizing Medicines.

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The Microscopical Observations of *Sanctorius* inform us, That the very inmost Viscera, Ligaments and Bones, are all vasculous. This is also prov'd in the Experiments of *Lewenboeck*, who in the most minute Point of the Membrane of a Frog, and in the Joint between a Batt's Wing, discover'd innumerable Vessels in the Bones by the Help of a liquid Injection. In the Arteries (no Part of them being as yet injured, and the *Periosteum* left entire) he observ'd innumerable Points, before not discernable. This Proposition is also evident from the Inflation of the Eyes; which puts the Matter beyond all Doubt.

Prop. II. EVERY sensible Vessel in our Bodies hath its Cavity and its Particles (or Boundaries) which are formed by a coherent Texture of the small Vessels internal and external, which small Vessels are likewise compacted of smaller, which extend to those Parts of the Body that are void of Vessels. This brings to my Mind the ingenious Invention of *Reuschius*, who makes it appear by the Injection of a Liquid into the Tunick of the *Aorta*, or great Artery, that that also consists of numberless little, yet real Arteries, and where Arteries are, there without all question are Veins too. We see also in Animals that are strangled, how swelled and turgid Arteries appear, which at that Time discover innumerable little Vessels, before invisible. The same also may be observ'd by hard and strong Ligatures upon the Body. Lastly, This Proposition may be prov'd from considering the first Rudiments of the *Fetus* in the Womb, and how it encreases: for we are sensible from how small a Point (which nevertheless at that Time contains the whole Man) we receive our Origin. Now there must be some Minute Vessel, out of which the other Parts of the Body must be compos'd, therefore the Liquids contain'd in our Bodies are not divided in *Infinitem*, which they must

of Necessity, be were there no primary Vessel. Bodies, unless they be defended by some liquid contain'd in them, wou'd immediately be compress'd, and consolidated together; and this is the Origin of Solids, because our Bodies are on all Sides press'd by the Circumambient Air. Thus the Navel-string after its cutting off, becomes a Ligament, and the *Foramen ovale* closes upon Respiration. Thus our Nails and Hairs appear like that Channel of Arteries, between the Artery of the Lungs and the *Aorta*.

Prop. III. THE minute Vessels in our Bodies, have for their lateral Membrane some other smooth little Membranes form'd after a Cylindrick manner. The Proof of this Proposition is evident from hence, because if these minute Vessels were not cover'd with a smooth, solid Membrane, they must necessarily be form'd out of other minuter Vessels, so that these would not be the minutest, and thus the Process would last in *Infinitem*.

Prop. IV. THEREFORE these ultimate *Latera* or Sides of all the Channels, are neither Arteries, nor Veins, nor Lymphatick Vessels, nor *Ductus adiposi*, nor any other Vessel; the Reason of this is, because all these Vessels are indeed term'd minute, but not the minutest of all. So that the least Point of our Body, is not such a Vessel as I have been speaking of.

Prop. V. THE ultimate *Stamina* of all Solids in our whole Body, are perceiv'd to be merely nervous, or compacted of solid Particles, which have their Original from united and consolidated strong Fibres. This Proposition may be prov'd many Ways. In the first Place let us consider what the Industry of *Malpighius* detected in Bodies, *viz.* That the *Ovum Maternum*, or the first Rudiments, very much resembles a Worm, which Worm is nothing but the
Spinal

spinal Marrow. By a successive Incubation small liquid *Bulle*, or Bladders, springing out of the Spinal Marrow, constitute the Brain, from which afterwards are form'd the little Bladders of the Eyes. In some Hours after Incubation, there issues forth a bended Tube divided into four Branches, which constitute the Heart and Lungs; afterwards the Membranes and Tunicks grow up, and so gradually the other *Viscera* are form'd, all which are at length cover'd with a Membrane. All this he experimented in the Egg of an Hen; from hence it appears that all the Parts have their Origin from the Fibres of the spinal Marrow, tho' some Objections may be started; as, How is it possible that from so yielding and soft a Part as the Spinal Marrow is, Bodies so different should be form'd? This Objection is remov'd, if we consider first, the Generation of the Horns of Oxen, which are at first soft and yielding, or even of our own Nails and Teeth, which from soft Bodies in process of Time become hard. Secondly, It hath been prov'd above, That all great Solids are compos'd of minute ones; therefore the minutest Sort of Vessels ought to have the same Rise with the largest. Now the smallest Vessels in our Bodies are the Nerves, at least so far as our Senses can penetrate. Thirdly, If we consider the *Moles* (or Substance) of the Brain and of the spinal Marrow together, and likewise the *Moles* of all the Solids when their Liquids are express'd, none appear so large as the Brain and spinal Marrow. For the Brain contains but a small Liquid in Respect of the other Parts of the Body, which are distended with a copious Quantity of Fluids. This Matter is also evident from consumptive or paralytick Bodies, where there is scarce any Flesh remaining but some few Filaments and Bones, whereas the Brain and spinal Marrow are all this while in their right Con-

Constitution, and in Substance may be said to be equal to all the remaining Fibres of the Body. Fourthly, It hath been prov'd *a Priori*, that all Kinds of arterious and nervous Tunicks arise from a Tendon in the *Basis* of the Heart, and the whole Body is furnished with Veins and Arteries. But the Heart receives its primary *Stamina* from the Brain, as hath been proved before.

Fifthly, and Lastly, THIS Matter is manifest from the Generation of Bones; I would recommend to your Perusal *Haver's Osteologia*, which will put the Matter out of all Doubt.

THE Virtue or Efficacy of Medicines apply'd to Solids, operates either externally or internally, by *Meatus's* (or Passages) into the nervous Tubes, because no moveable Point in our Body can be touched, unless a Nerve be touched also, or they will operate on those Parts which ultimately arise from the Nerves.

Cor. 2. IN the smallest Vessels the Proportion of the Solid to the minutest Fluid contain'd therein, encreases in Magnitude as the containing Vessel decreases. The general Demonstration of this is from the Inspection of Bodies, the minutest Vessels (as *Malpighius* hath demonstrated) are in the cortical or medullary Substance of the Brain, for this is certainly true, the smaller the Vessels that any soft visible Body hath, the more compact it seems and (as it were) Solid; but the larger Vessels any Body hath, the more loose that Body seems to be.

Prop. VI. THE larger the Vessels are in our Bodies, the more are the Points of Contact enlarged between the *Latere* (or Sides) of the Channells, and the Superficies (or Surfaces) of the Particles which flow through. If one Ounce of some certain Liquid shou'd be put into the great Artery to be conveyed daily to the minutest Vessels, the
Contact

Contact will be encreased in these Vessels; Fluids passing through will then be relaxed into many Superficies, so that they cannot but touch in most Places: hence follows this Corollary, that there is the least Incursion into the largest Vessel, and so *vice versa*.

Prop. VII. THE smaller the Vessels are, the greater is the force of a Solid upon it's Fluid; and the larger any Vessel is, the lesser is it's Operation. This Force we call an Energy of communicating Motion: The Proof is this, If we suppose two Bodies equal, they will have in themselves an equal Force and Power of resisting each other, according to their Bulk or Substance. Now we suppose Liquids, as resisting Solids, as acting: Therefore where there shall be a larger Proportion of a Solid to a Fluid, there also will be a larger force of the Solid acting upon its Fluid.

Cor. 1. THE Force of a Solid in its last end upon the Liquid contain'd in it, can be nothing else but a *Conatus upon the Arctation*, or struggling to oppose the Consistence of its Space which is effected by the ultimate *Latus*, (or Side) the Channel also may be altered, when its Capacity is changed by the Laws of *Mechanism*. All the Force of Solids upon their Liquids depends upon the Mutation of the Vessels, *viz.* If the Channels are extended or dilated, their Space is straitned; and when they streighten their Space, they push forward their Liquid.

Cor. 2. SINCE the operative Force of all the larger Vessels, depends upon the Communication of every the least Vessel, and since every Artery receives Force from the Change or Contraction of its *Laterra* or Sides; hence follows this Corollary, that all *Nutrition* and *Accretion*, that is, an Extension of the ultimate Fibre in the Solids, is wrought only

only in the smallest nervous Vessels, but not in the rest; the Demonstration is this, all *Accretion* is an Extension of the Vessels, and all the larger Vessels consist of minute ones, therefore those are extended, so that the primary *Nutrition* is made in them; hence it follows that the Operation of all Medicines, whether they act by Repletion, Evacuation, &c. is upon the ultimate Vessels, that is, upon the minutest. We assert therefore that almost every Alteration of the Liquids contain'd in our Bodies, happens in the minutest Vessels, seldom or never from the Liquids themselves, as when the Heart discharges the Blood upon the Lungs, it is changed in the minutest Vessels of the Lungs, the Cause of the Alteration is not from the Liquid, but from the Channels in the Lungs, the Transposition of every Part works a Change. the first Assertion of this Proposition may be demonstrated by the very Blood which in the larger Vessels is of the same consistency, but in it's return from the minutest Channels appears changed: The other Assertion may be prov'd by the foregoing Propositions, *viz.* from the Superficies being changed by the Incursion, which frequently happens in the minutest Vessels, If this Force depended upon the Liquids where there is the least Quantity, there the least Operation would happen; but the contrary is observed.

Prop. VIII. IN all the *Latere* (or Sides) of the flexible Channels, there is an inherent Force, whereby the Parts endeavour to cleave to each other. This is demonstrated, because no Fibre in the whole Body can be wounded, but it retracts or draws itself back to it's fixed Point, wheresoever that shall be; for all the Parts have a natural *Conatus* or Tendency towards each other.

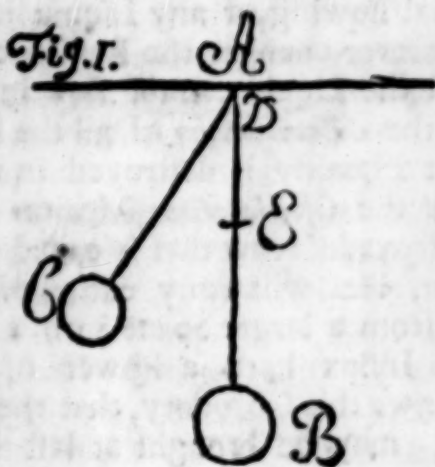
Prop. IX. THAT the Force of all the Parts of a Body tending towards each other, is kept up by the Points

Points of the fixed Parts, or by those to which the Fibre is apply'd; and every Point ought equally to bear a reciprocal Attraction towards another. Another Cause of this Sustentation is produced by the Fluids passing through; and there is likewise a third Cause, *viz.* the Force of the altered *Conatus*, whereby the Parts of a Body (as the Naturalists affirm) attract each other, although they seem to be at rest.

THIS *Conatus*, whereby all the Parts of a Body tend towards each other, as if they were engaged continually to attract their Weight, which Tendency may be overcome either by the Resistance of the Solids, or Extension of the Fluids; and this Force whereby all the Parts of a Body tend towards the approach of each other, is equally poised by Counter Antagonists. the equal flowing of the Liquids into all the Parts of a Body, is the Cause of this *Equilibrium* in all the Solids, but the cause which keeps all Things in this *Equilibrium* ought equally to distend all Parts, and this Extension is caused by Protrusion and Impletion.

THE distending Force is the Influx of the Liquids, and the Cause of this Influx proceeds from the Heart.

FOR the Proof of what I have now said, the following Experiment may serve; Let us suppose some Body as *B*, to hang down from the Line *A*, to which Line in the Point *D*, on one Side, we will suppose another larger



Body,

Body C. to be affix'd: then the Line being extended by these Weights, we will suppose it to be cut on a sudden in the Point E. and the Weight C. will rush with a violent Force towards A. by the drawing back of the Line which was before extended. Others make the Experiment after this



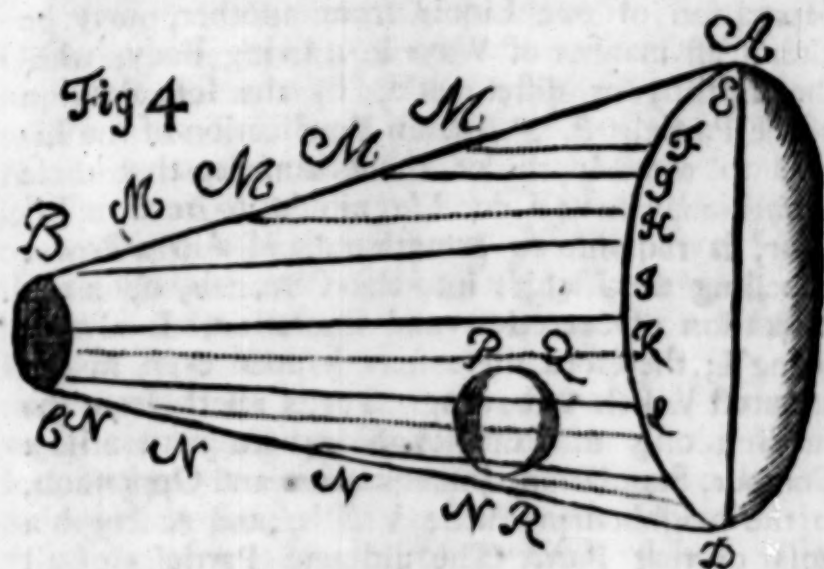
manner, they extend the Line A. B. strongly; in whose Points F. and G: they fix two other Lines, bearing equal Weights, and fix them on the tablet E. and make the

very same Observation as in the former Experiment, viz. That the Line being suddenly cut in any Point, forceably draws itself back to it's fixed Point by F to A, and G to B. Therefore I assert, that whatever *Momentum* or primary Power operating upon the Influx of the Liquids, which hinders the equal flowing of any Liquid into its Channels, or whatever changes the Resistance of the Channel so, that the Liquid cannot flow in equally, changes also the *Equilibrium* of all the Parts, and as soon as that Equality is destroyed in any Part of the Body, the *Oscillatorious* Motion of the Parts is also destroyed. Now that is called an *Oscillatorious* Motion, viz. when any extended Channel is contracted from a larger Space into a less, it arises because the Influx hath a Power of Resistance. Hence follows this Corollary, that the Primary of all Powers, may be brought at last into some one Part, and

I say if we examine them physically, mechanically, chymically, or by the help of Microscopes, they will all be found to act upon Solids after the manner I have mentioned; therefore the Particle P, R, the more sharp ponderous and austere it is, and the closer it is fixed, the more violent will be its effect: But the Violence of its fixedness depends always upon the Force with which it rushed in. The most rigid Bodies are Metallic and Semimetallic Semimetallic Bodies are arsinick, bisimure, &c. which indeed in Operation exceed Vegetables, but are themselves excelled by Metallick Bodies.

THE more acrid the Particle P, Q, R, is, the more violent is its Effect; the most acid Body is that which is so figur'd, as by the fewest Points to be apply'd to the Penetration of any Body; upon this account there is so great a Force in Mercury sublimatè, *Lapis infernalis*, &c. Supposing all Points equal, the greater the Force of the Fluid between P, Q, R is, the more violent will its Effect be upon B, K. which shews that Persons in a Fever upon the taking any Thing acrid or acid, perceive its Effect much more than others; so likewise do they who put their Bodies into Motion immediately after the assumption of the acrid or acid; therefore I assert, In whatever Person the Influx of the Liquids is almost ceased, in this Person, I say, that the Power of almost all Medicines and Poysons is ineffectual, even in Places very near the Heart: Thus Causticks operate scarce at all in Persons that are at the Point of Death, which would act strongly upon healthy Bodies; which naturally leads me to an Admonition, That Acids are not to be administered when there is any vital Heat or Strength observ'd about the Heart or Parts adjacent, tho' the rest are languid. The Reason that the Efficacy of Acids is lost upon a cadaverous Body, is this;
Be-

Because there is no longer any Motion in the Channels or Influx of the Liquids, both which equally contribute to the Sustentation of that acid Body; yet if Heat should be apply'd at the same time with some Acid, it would presently operate; which is the Reason that Cautericks operate not at all upon dead Bodies, unless the Part to which they are ap-



ply'd, be fomented, which are demonstrated in the Conick Vessel, *A, B, C, D*, the same in some Measure will be true in the Cylindrick Vessel, except that the Effect will not be so grear, this is the Reason that the acid Medicines in Vessels not arterious operate less violently, we may suppose a venous Channel inverted from an arterious Channel.

I ASSERT in the first Place, That all Causes which operate upon the Solids of our Bodies, operate less when apply'd to a Cavity of those Vessels, out of which a Fluid passes from a narrow Compass into a wider; but if another acid Particle like *P, Q, R*, should apply itself to the outward Side of
C the

the Vessels, it will work the same Effect as if it remain'd within the Channel; for the circumambient Atmosphere or the circumjacent Vessels would drive it forcibly into that Vessel to which it was contiguous: Moreover, those ultimate Channels are so tender, soft and yielding, that the gentlest Acid being apply'd, penetrates into them immediately.

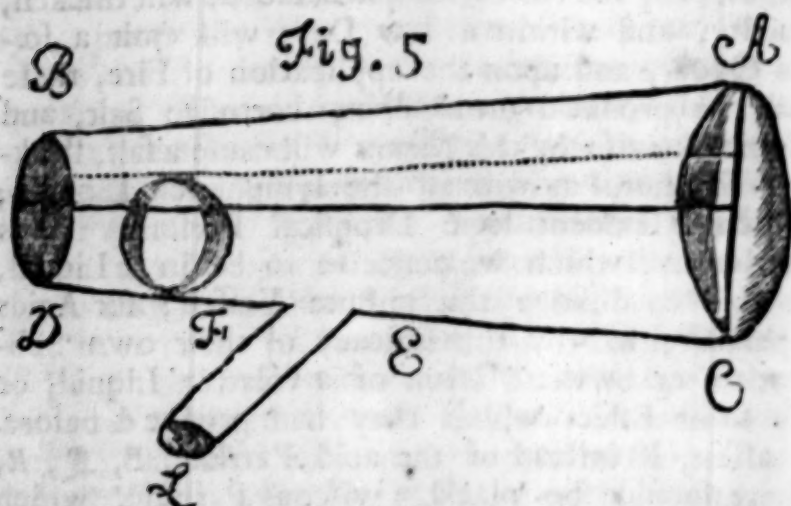
I **ASSERT** secondly, That Secretion, which is a Separation of one Liquid from another, may be alter'd all manner of Ways in a living Body, whether healthy or distemper'd, by the sole Position of the Particle *P*, *Q*, *R*. an Application of the Liquid to the Mouths of the Channels, that these Mouths may have a due Magnitude to receive Liquor, is requisite to Secretion, and also a Power impelling the Liquids into the Channels, upon the Alteration of Secretion and Excretion, is always chang'd; therefore there may happen even in the minutest Vessels a bursting. For, I assert, from the bursting only of a small Vessel, there may arise a Tumour, Stagnation, Inflammation and Oppression, in the neighbouring little Vessels, and at length a Loss of that Part. The ultimate Particles of all Liquids consist of Solids. That is term'd Excretion, which once pass'd thro' the Vessels, but is now emitted by the Emunctories of the Body.

Cor. 1. A **SENSIBLE** nervous Fibre being injur'd, there arises Pain, which causes a Distillation of the liquid Particles, and a Stagnation of the thicker Part that is contain'd in it: The vital Liquids of our Bodies flow to the Heart thro' the minute Vessels of the Lungs. I call them minute, which they must necessarily be, that all the Vitals may pass thro' them; so that even from the Aperture of a Vessel there may happen in the same Place a Stagnation, and in the Vessels where that happens (as also in the proximate Vessels) there is a Putrefaction.

Cor. 2.

Cor. 2. THE Liquids which remain in those Vessels, (as above-said) retains the same Nature of the vital Liquids, which they had when they flow'd through the Body; for all the stagnating Liquids of our Bodies, such as extravasated Blood, will thicken, putrify, and within a few Days will emit a foetid Odour, and upon the application of Fire, there will be produc'd an alcalous, corrosive Salt, and Urine likewise by this Means will cause a salt, stinking Sulphur, as will all the lymphatick Liquids; which is evident from Dropsical Persons. This Acrimony, which we conceive to be in a Liquid, is able to dissolve the minute Vessels; for Acids operate either by the Efficacy of their own Substance, or by the Motion of a volative Liquid, or by some Effect which they had produc'd before. I assert, If instead of the acid Particle, P, Q, R, there should be plac'd a viscous Particle, which would tenaciously adhere to the Sides of the Vessels, without Acrimony, or Penetration, that is, in a large Superficies, (or Surface); for otherwise it would be of the Nature of an Acid, that is, if it resided in a nervous Superficies; the less Fixation it shall have towards a larger Place, by so much the greater Force of an impulsive Body it will sustain a lesser Force when fix'd towards a narrow Compass, will cause in that Part great Oscitation and Pain, tho' not very penetrating, and a violent Degree of Heat attended with Heaviness, &c. The more remote that Particle shall be plac'd from the Extremity of a Vessel, the more it will sustain; viz. as much as the whole remaining Part of the Vessel; so that 'tis impossible but the Channel will be extended in that Place, which nevertheless contracts itself again; from whence successively in the chang'd Fixations, the Channel at length is united; but the Channel either emits its Liquid without or

within the Body; therefore that Part can be no longer preserv'd, than whilst it receives its Liquid from other Parts. But now if we suppose there should stick to this Vessel another Vessel like E, F, L, a



contain'd Liquid must necessarily, by reason of the Impediment of B, D, flow thro' it in larger Quantities, and with greater Force; and this larger Force and Quantity, causes the Channel to be more distended, which Distension gives it more Resistance, which is the Reason that a violent Degree of Heat is felt in those Places.

CHAP. IV.

Concerning Fluids or Liquids.

THUS far I have treated of Solids: I come now to the Liquids contain'd in our Bodies; which flow by this Law, that they are capable of being remov'd out of one Place into another, and so enter the Heart, except those Liquids which are sent

sent out of the Body by Excretion. That Mass which in its Motion remains in the Heart, is call'd the Blood, which as it is convey'd to different Parts of the Body, receives different Names and Alterations, as Fat, Urine, Choler, Spittle, &c. then those are call'd Liquids, which when they were in the Heart, had the Name of Blood; so that whatsoever is capable of Separation in the Body, ought to have its Rise from this Mass of Blood; and whatsoever is already separated, was produc'd from it. I shall enquire into the Blood, not as issuing out of the Body by Chymical Experiments, but as it exists in a living, healthy Person. And since those Observations which are made by the outward Senses, are most certain, I shall begin with them. The Blood of almost all Animals, as Brutes, Fishes, Men, &c. (not to make any Distinction concerning hot and cold Blood) for the most part retains the same Red Colour constantly, which is made up of three remarkable Parts; first of Water, which is, as far as we can discern, without Taste, and of but little Smell, and is render'd volatile by the Fire, which dissolves all Things, is not at all spiritous, and if any, hath a scetid Smell: Its being insipid, is a Proof that it is no saline Spirit, (as the Chymists assert) since it is render'd volatile by Fire, it is prov'd from the congeal'd *Serum* of the Blood, which dissolves all Sorts of Salts, but not Oyl, as having a Spirit even in its greatest Congelation. Thus all Water may be coagulated, and become a very hard Substance, which may again be dissolv'd by Heat, and be render'd very fine and clear, as we see in coagulated Urine. Secondly, It consists of *Serum* not Red, but pellucid or transparent in particular Places, very different from an aqueous Substance; if it be intercepted, it is of a yellowish Colour, (I do not now speak of a wounded or sickly Person) and coagulates with

with Cold, but not often with Heat. The third Part of which the Blood is compos'd, coagulates as well with Heat as Cold into a very great Hardness like a Membrane; it is that Part of the Blood which causes the Redness as it flows. The Blood in a sound healthy Body is very Red, in a sickly one it turns to a blackish Yellow. Thus far what I have spoken concerning the Blood, is plain and evident to the naked Eye; but Microscopes discover further, that the Blood consists of spherical Particles swimming in the primary Liquid, which sticking plentifully in the larger Vessels, look red, but when they come to the smaller Vessels they put on an oval Figure, and lose some of their Redness, and are resolv'd into six very minute Globules, and so becoming six times less, are render'd so diaphanous or transparent, as to escape our Sight; our Reason tells us, that if the Blood proceed to Vessels still smaller, these minute Globules will be divided less and less, into six other Globules; from hence proceeds the Diversity of lymphatick and nervous Juice. These sanguineous Globules in extravasated Blood detain'd in the Vessel, begin to disappear and lose their red Colour, and then there happens a Separation of the *Serum*; but those Globules of the Blood which remain heap'd upon one another, retain their red Colour, and grow hard; therefore the Redness of the Blood arises from the Union and Compaction of these Globules; when those sanguineous, round Bodies appear swimming in the transparent *Serum*, they begin to recede from themselves mutually, and lose their Texture, which was the natural Cause of the Redness. So that when they thus recede, the Redness of the Blood is lost. Of these three different liquid Parts of the Blood, there are two which coagulate by Cold, and one which coagulates by Heat. The whole Mass remains fluid

as long as we live: Therefore I assert, That the Cause which preserves this flowing of the Blood, is not Heat; for then it would follow, that the Blood taken from any Vessel of the Body into a Porringer, and preserv'd with the same Heat as it was in the Body, it would remain fluid; but since the contrary is observ'd: For the same Degree of Heat wou'd cause the same Effect every-where; besides, in those Animals which are most cold, the Blood is very fluid, and is mov'd very quick, altho' their intrinsic Cold far exceeds the Cold of the circumambient Air, as is observ'd by Thermoscopes. Fishes are a Proof of this, and also all Animals, the Circulation of whose Blood is not prepar'd by the Lungs, nor does this Flowing descend upon any Thing proper to the Blood, that is, from any Thing which occurs to its Constitution; but it is caus'd by the Motion of the Solids, thro' which the Blood passes, by which it is continu'd; for as soon as the Action in the Solids ceases, the Blood is congeal'd. Heat and Cold, in some wise make up the Strength of its Motion, and they are Causes constringent; but they do not preserve Life and Health, but these depend upon the very Action of the Solids.

I assert, in the second Place, That the Cause which conserves the Motion in the Blood, is not any Thing proper and inherent in the Blood, by which we understand Things occurring to its Constitution, which Power is in the Heart. If the Blood was fluid of its own Nature, its Fluidity wou'd chiefly appear there where is the greatest Quantity of it together; whereas the very contrary is observ'd in the Blood. Therefore the Causes of the Motion of the Blood must be extrinsical; such a Cause is the Motion of the Solids thro' which the Blood passes, that is, the Motion of an impress'd Flowing, as well as of a continu'd one; it is plain, that an impress'd Motion is a

Cause, if we consider how the Chyle becomes fluid from solid Meats, from which Chylé the Blood proceeds; that a continu'd Flowing is likewise a Cause, is plain; because the Action in the Solids ceasing, immediately the Fluidity of the Blood ceases, and a Congelation follows.

BUT Heat may be consider'd as a concurring Cause; for if you take a Snake, or some such Animal, which in the Winter-season lies as dead, and look thro' a Microscope, you will perceive the Blood congeal'd in its little Arteries, and the Motion of the Solids to be very much retarded, and upon the Application of Heat it wou'd not be mov'd to the exterior Parts, till the Heart be first put into Motion, and so at length the increas'd Contraction of the Heart (by Motion) dissolves the coagulated Blood. See *Lewenboek*.

THUS far concerning the Blood itself: Now let us see how it may be alter'd or chang'd by Medicaments.

CHAP. V.

Concerning the Qualities or Properties of the Blood.

THE Qualities which are in the Blood, are, either such as it hath in common with all other Fluids, and may be term'd general Qualities; or such as are peculiar to itself, and to no other Fluid, which may be call'd singular; the former have been consider'd by Mathematicians, in that Part of *Natural Philosophy*, call'd *Hydrostaticks*, but they have never yet been able to demonstrate the latter.

THE first general Property belonging to the Blood, (and to all fluid Bodies likewise) is, That it ought to enjoy

enjoy that peculiar Quality, the presence of which makes us call any Body fluid, viz. that such a Body shall easily, or by a slight Motion, suffer a Separation of its Parts one from another, when by our Senses we perceive that in any Body, we call that a Fluid.

THE second general Property, is a Littleness of the Parts, which makes them easily yield to Separation.

THE third general Property, is, That each particular Particle should likewise have Gravity; for the Gravity of the whole depends upon a Congeries of single Parts. There may be added a fourth general Property, viz. The Motion of a Fluid.

THE singular, or peculiar Properties of the Blood, are likewise four; which are taken either from considering the determinate Nature of the particular Parts of the Blood; as, first its *Moles*, or Quantity; secondly, its Shape or Figure; thirdly, its Solidity.

AND in the next Chapter shall be consider'd (which may be reckon'd its fourth peculiar Quality) How great a Property there is in the Particles of the Blood, to Cohesion, to Resistance, and to Divulsion.

IN the Seventh Chapter we shall enter into a Consideration, concerning the specifick Gravity, and Levity of the Blood.

IN the eighth Chapter we shall enquire into the various Degrees of the Perjectile Motion of those Liquids which constitute the Blood. It is impossible to determine the *Moles* or Quantity of Water that resides in the Blood, it being so pellucid, as to escape the Sight, even tho' we use a Microscope: Besides, so very minute are these aqueous Particles, that they are able to pass thro' the Pores of the Body, which also it is impossible for us to discern, even with Microscopes.

THEREFORE I assert, That the watry, is the thinnest and finest Part of the Blood; so that on this the Effects of the lesser Motion of our Bodies seem to depend. In this Water of the Blood swim Salts, which constitute its specifick Quality, and render it more ponderous; this is caused in the Heart, whence this as well as all other Liquids receive their Origin. These fore-mention'd Salts do sometimes lose their Fluidity, and become chrystalline, like to the Salt of the Sea, which when the Water is separated from it by Fire, will look thin and clear, and the Salt will settle to the Bottom like Ashes. The Vitiosities of this Liquid consist in the Increase (or Diminution) of its Mass or Quantity; as, if we suppose a Body perfectly in Health, and Sickness should afterward happen, that Sickness must have its Rise, not without, but within the Body, which is thus prov'd: Whatsoever enters into the Heart, is by that convey'd thro' the Veins; which Veins receive all that they contain either from the absorbent Vessels of the Body, or from the lacteal Vessels and the Chyle; now the Mouths of those Vessels are less than those adjoyning to the Arteries and Veins, which *Lewenboek* demonstrated by Microscopical Observations, *viz.* That the sanguineous Globules are larger than the Globules of the Chyle, and that the Globules of the Chyle are larger than those which enter into the Mouths of the absorbent Vessels; which proves, that 'tis impossible those Bodies should come from without. Therefore we must search into the Body for the Cause of the increase of this Liquid, and so apply our Medicaments internally.

If those Particles which cause an Increase of the Blood, pass thro' the Lungs, they may likewise pass thro' the rest of the Vessels, tho' the Lungs must necessarily first feel the grievance; because there

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(as *Malpighius* hath demonstrated) the capillary Vessels are the smallest; but seeing the Lungs do not always suffer Detriment after this manner, it comes to pass, that in none of the Arteries the Blood is so compress'd by any external Force, as in the Lungs, from whence these augmented *Moleculæ* or little Masses are divided into very minute Parts. The Effect this augmented Mass of Blood hath, is to hinder either the Circulation or Secretion of the Liquids; the one obstructs the Function of the Liquids, and the other causes Death; therefore every Medicine that corrects the Increase of the Mass, must have respect to the Functions of Life, the ultimate Parts which constitute it being larger than they ought to be: Now whether or no Diseases may arise from such a Cause, is disputed by most, and deny'd by a great many. Every Cause which diminishes the Mass of Blood, is to be sought for, either without or within the Body; it is a Question whether our Bodies are not surrounded with such Bodies as may administer a certain Degree of Fluidity to our Fluids. That the same thing happens in the inside of our Bodies, is plain from Experience. Now when the Mass is diminished, there ensues a Stagnation of the Blood (supposing all the Vessels remain the same in the same Body) the whole Mass of Liquids flowing directly to the Veins and Heart, which causes an Evacuation in the largest Vessels, whereby all the Blood passes into the Veins, and so is naturally forc'd to the lateral Vessels, and then those lateral Vessels fall together and unite; which causes a Pining and Wasting; this is also evident by Experience, *viz.* from the Blood of Pthysical and Consumptive Persons while it remains fluid. When the *Moles* or Mass of Blood is diminish'd, there generally happen chronical Diseases, and when it is increas'd, inflammatory Diseases; If there is any Fault
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in the Shape or Figure of the Particles of the Blood, it is because they are either too sharp or too obtuse. The Faults of a sharp, acid Figure, which operates only upon Solids, have been explain'd before. If the Shape or Figure is not sharp or rigid, it can do no Hurt. Now the Causes of this Sharpness proceeds either from Indigestion, or from our natural Constitution: These acid Particles are more solid than ordinary, thin and austere, as are chiefly almost all alcalous Salts. Hither may be referr'd all Sorts of Poysons and acid Medicaments, which have their Origin in the Attrition only of one Part with another. Now this Attrition is caus'd in us either by Corruption, or by a long Stagnation, without restoring the lost Part. The suppos'd Cause of Corruption, is Tepidity, or a certain Degree of Heat; for in the greatest Heat and in the greatest Cold, the Blood does not putrify and corrupt; but in one Case is congeal'd, and in the other is curdled. Now the Blood discovers such a Tepidity in our Bodies, as soon as it begins to stagnate; for the Taste of the Blood in healthy Persons is sweet and pleasant; but if it hath sensibly stagnated, it becomes very acid, unpleasant and foetid. It is evident from Fevers, that the Circulation of the Blood, without any Resection of the Parts, is capable of producing this Acrimony; for then all the Liquids seem to be acid, which were not so in the natural State; for if an accelerated Motion happens in the Heart, and if the Passage of the Blood thro' the minute Vessels is obstructed, there will be an Acidity; and so a very great Stagnation of the Liquids, unless mild and mollifying Remedies are apply'd, will produce Acrimony. And from hence we may observe, that the same Effects may be wrought by internal Causes in the Constitution of our Bodies, which also may be produc'd by a perverse Circu-

Circulation of the Liquids, as if we had taken Poyson.

THAT is call'd Solidity in any Body, when its similar Parts are so interwoven within one another, as to touch each other in their Superficies, (or Surfaces) and discover a great Number of *Meatuses* or Passages; therefore the fewer Pores any Body hath, the more solid it is, and consequently the more simple and uniform. The most solid known Body is Gold; here I mean only a mechanick Solidity, the Sign and Property of which, is Gravity; and *vice versa*, the Mark of Gravity, is Solidity; therefore the similar Particles in our Fluids, are call'd Solids; the most solid Parts of our Liquids involve several Particles under the same Superficies; from whence it follows, that the most solid extended *Moles* or Mass, exercises with, and receives from other Parts a less Motion; but since the whole Mass of our Blood consists of remittent Parts, it is evident that the less solid Parts always pass thro', and pervade the Body, and excite a greater Motion. The Origin of our Solids forcibly driven into our Bodies, generally seems to be external. The Inquiry is not, Whether Blood, for Instance, a Cubit or Foot deep, or such-like Measure, is able to separate in one *Dimidium* a lighter Substance, and in another a heavier, both which Substances may be of the same Weight? But whether or no the small *Moles* or Mass can be alter'd so, as to contain more and heavier Particles than before? And if we consider, we shall find that it is impossible to be effected; nor is Gravity so easy to be alter'd. Water, indeed, which is the lightest Liquid, is able to sustain the most solid Body, if it be apply'd to so many Surfaces as to remain in an Equipoize. Thus I can divide Gold into such small *Lamellæ* or thin Plates, as to swim upon the Water; which is effected by a proportionable Gravity

Gravity in the Mass; but because any Particle may be apply'd to the Surface of another sustaining light Body, we may observe from hence this *Corollary*, since a Body may be divided into several Surfaces, and in respect of another Body, may become light, if it retains its proportionable Gravity, the lesser Surfaces that Body is apply'd to, the heavier that Body is; therefore Remedies or Medicines, ought to be Bodies of the same Gravity as our own Bodies. Thus Animals and Vegetables, being resolv'd, are almost of the same Gravity with our Bodies: From hence the Body is able to bear them when taken inwardly, if we are in Health; but if they are more solid than our Bodies, as Salts, and crude, and sulphurous Metals, when taken, they presently cause Gnawing and Diseases, or at least Uneasiness. Another Fault may be, when the Bodies are less solid, or heavier than the Particles of our own Bodies: The diminishing of Solidity, is an augmentation of the Surface, and a Congeries of minute Particles; Let us suppose a less solid Body to be mix'd with the Liquid, the greater will be its Operation, or a certain Unfitness of changing another Body, which will occasion a less Dissolution, and greater Viscidity of a Liquid, and an Inaptitude to Circulation. Now the Causes which produce in our Bodies, such Bodies less solid or porous, are more difficult to be discover'd, than is commonly imagin'd. For altho' the most solid minute Bodies enjoy a larger Superficies, considering their Littleness; yet other larger Bodies, which are more porous, have more Surfaces but disorders; which arise from too little a Degree of Solidity, very seldom happen.

C H A P. VI.

Of the Fluidity of the whole Mass of Blood.

IN this Chapter the whole Mass of Blood is to be consider'd: The Viciosities which arise in the Blood, proceed either from too great a Dissolution, or too great a Viciousness of its Particles. A Dissolution of the Blood happens first when its Particles are more Minute then they ought to be, and secondly, when the Particles have not a due *Conatus*, or Tendency to cohere one with another. The Littleness of its Particles, and consequently too great a Fluidity, takes its Rise from its Admission with Bodies, which are more capable of being separated then the Particles of the Blood: Such Bodies for Instance, are volatile Salts, Aromaticks, Acids, and distilled Waters, thin Drinks; Saffron with warm Water dilutes the Blood, as also doth the volatile Salt of Hart'shorn, and *Sal Armoniack*. All mineral fix'd Salts, thin the Blood, such as Quick-Silver, &c.

THIS Dissolution is principally excited in the larger Vessels, from whence its derived to the minutest Vessels. When this Dissolution comes to the latterl secretory Vessels, it exhales so much from the Liquid in those Vessels, that a Person so affected is ready to fall into Swoonings, because all Things pass through them too swiftly, and the Vessels have no Power to make any Resistance. In this Dissolution, of the Blood at first large Evacuations happens, but afterwards none at all, as in a *Diabetes*, or *Ptyalismus*.

THE Blood is said to be too slow in its Motion, when the ultimate Parts which constitute it, are so large, as not to be able to pass thro' the minutest Vessels,

Vessels, or are so intangled together, as not to be dissolv'd without Difficulty. This Slowness of Motion, or Unaptness to Fluidity, proceeds from two Causes; either because its Particles are too Bulky, so as not to be able to pass through the Vessels, or from their too great Propensity to Cohesion, or Contact. The Effect which is caused by this slow Motion, is a Repletion and an Obstruction of the Vessels.

IF the Blood moves slowly in the great Vessels, as in the Ventricles, and Auricles of the Heart, in the *Sinus Venosus*, or *Vena portæ*, in the large *Sinuses* of the Brain, the Valvules of the Heart, &c. there arises a *Polypus*, which happens not in the lesser Vessels, which is at first a glutinous Mass; but afterwards grows Solid, and fibrous like a Hog's-Skin: It preceeds from the red Particles of the Blood coagulated and intangled together. It is at first by a transectorious Motion of the Blood, convey'd as far as the angust or narrow Parts, and from thence is carried Back, by a contractive Motion of the Vessel, to those Parts where the Vessels are wider, and at length, adheres to the Side of some Vessel, and there increases till in some Measure it obstructs the Vessel, and hinders the Motion of the Blood, which causes a Tremor, and Palpitation of the Heart.

BUT if this slow Motion happens in the minute Vessels, it causes a Stagnation which cannot be easily removed, and will at length be attended with an Inflammation, which will be follow'd by an Abscess, and a Gangrene, *Sphacelus*, *Schirrus*, and Cancer.

IF such a Tardity of Motion should happen in the Lymphatick Vessels, which lateral Vessels are perfectly of a conic Figure, and have their Foundation in the Arteries, there will arise in these small

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Lymphatick Vessels, a glutinous Obstruction, or a Kind of white Settlement, which obstruct the Vessels. This has often been observ'd in *Women*, and also in Men that have flabby, and loose Bodies. If this Viscidity happens in the smaller Lymphatick Vessels, and their Extremities, it will produce an *Anasarca*, *Leucophlegmatia*, and Dropsies of all Sorts, the whole viscid Part becomes rumified, and transparent, and if it still remains, it causes a *Tabes Ichorosa*.

A Viscousness in the Nerves seldom happens, but if does, it produces uncommon Diseases: This seldom happens in the Nerves, because this Liquid is less obnoxious to Concretion than all the rest.

It is evident from Air, and such like substantial minute Bodies, as Spirits of Wine, &c. which are of a similar Nature with the Liquids of the Nerves, that this Concretion cannot easily happen. Secondly, The violent Influx into the Brain, whereby the Spirits are propulsed, which are always in a very violent Motion, hinder the Liquid of the Nerves from growing thick or viscous. However, what we advise in Diseases of a nervous Kind, must be directed intirely to the Blood. If such a Viscousness shall happen in the Spirits, it will cause Insensibility, and loss of Motion. The general Advice given in Diseases of this Nature, is to abstain from all Things that are hot.

Now we ought to understand the physical Reasons of this Viscousness in the Blood, which is the Exhalation of its Liquid, from what Cause soever it happens, altho' there is nothing seems to coagulate it. An Experiment of this may be easily taken, if we keep the Blood for some Days in Vessels close shut, it will not concrete; but if we put it into a Vessel exposed to the open Air, it will presently thicken: The Reason is, Because the more subtle

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Particles

Particles exhale or fly off. Now 'tis observed that the Blood coagulates sooner and easier in the Arteries than in the Veins, because the Liquids contain'd in the lateral Vessels are not so soon united. This is the Reason of the Coagulation of the Blood in all Bodies, which can only be remedied, by restoring the lost liquid Particle. 2dly, It is observed in a Thermoscope, that all Heat thickens the Blood, so as not to be dissolved again without Difficulty: Therefore the greater the Degree of Heat is, the more is the Blood coagulated; so that all Causes which increase Heat in our Bodies, produce a thickening in the Blood, scarcely dissolvable: Therefore as I said before, in Diseases where there is Danger of a Coagulation of the Blood, there ought to be an abstaining from Things hot.

A third Cause of the Concretion of the Blood, may arise from too great a Degree of Cold, which is able to freeze Water, and also congeals the Fluids of the Body. This Effect is wrought in almost all the Liquids, secreted or separated from the Blood, tho' but seldom in the Bile (or Choler,) and scarce at all in the Humor of the Eyes, unless in extraordinary Cold; if this Coagulation happens in these Parts, it is the Cause of strange Diseases. Secondly, in extream Cold, the Parts exposed immediately grow hard, and undergo a very severe Scurvy.

THE fourth Reason of the Concretion of the Blood, is a sudden settling of the Liquids from the arterious Liquid. I can give you a very good Instance of this Matter: Suppose a Person in Health to be suddenly surpriz'd with some strong Passion of the Mind, he first is struck with Fear and Terror, then turns Pale, and then is seiz'd with Chilness and Amazement, and all the Liquids coagulate; if the Person thus affected, should labour under this Paroxysm too long, he will be ever afterwards subject

to Palpitations of the Heart upon the least surprize, and will feel Disquietudes about the Liver, and Spleen. Upon this Account Persons often fall into Faintings, and Swoonings, look perfectly like dead Carcases, and endure Anxieties not to be described about the Passages of the Arteries from the Heart, and Sweat very violently all over their Body. Persons that are often seiz'd after this manner, are generally all their Life-time subject to *Hypochondriac*, and *Hysterick* Tremors of the Heart; and when dead, there are commonly large Polypusses, or hard coagulated Tumors discover'd in the larger Vessels.

THE fifth Cause of the Concretion of the Blood ariseth from a Mixture of some particular Bodies. Thus all Acids extracted from Minerals, coagulate the Blood, as for Instance, Spirit of Vitriol, Alum, and Sea-Salt, and Oyl of Vitriol. If these Liquors are injected into the Veins of living Animals, they presently cause a Coagulation of the Blood, and bring on Death; but the Salts from whence these acid Bodies are extracted, doth not at all operate after this Nature; Allum and Vitriol do coagulate a small Matter, but Nitre and Sea-Salt, and the Acids of Vegetables not at all; as for Instance; The Vinegar of Rheenish Wine, do not coagulate, but rather dilutes the Blood, *Alcalious* Salts do not thicken, nor dilute it. *Sal Armoniack* mix'd with Man's Blood, seems to dissolve it, and *Sal Tartar* Force into little Heaps. Amongst those Liquids, which readily dissolve the Blood, Alchocol Spirit of Wine, is accounted the Principal, tho' it is evident this is contrary to Experiments; for if this Alchocol of Wine mingle itself with the Liquids of our Bodies, it causeth the highest Coagulation; so that they are very much mistaken, who supposed our animal Spirits, to be of a similar Nature to these vinous Spirits.

THE ultimate Cause of the Concretion of the Blood, is a too violent Motion, which is obstructed in the minute Vessels: For a very violent Motion cannot be long continued, but the Particles must mutually agitate each other very much, and when they proceed to the ultimate Vessels, they stick there intangled within each other, all the Liquids being express'd: This happens in Inflammations.

THE Effects of this Coagulation of the Blood are, first to hinder its Circulation; secondly, to obstruct and extend the Vessels; and thirdly, to dilacerate them, which often happens in minute Vessels. This is attended with the Destruction of the Channels, an Efflux of the Liquids, a Separation of the Liquid serous Part of the Blood, and a Stagnation.

Too soft or delicate a Frame or Disposition, depends upon too great a Fluidity, or thinnest Particles of the Blood. This too great Velocity depends upon the volatile Salts in the Hoofs, Horns and Marrow, &c. Acids, such as *lignum Guaicum*, Sassafras, fine Salts, when dissolv'd in Water, are best for dividing the Globules of the Blood. All Salts likewise extracted from Minerals, which the heavier they are, the better, if they could be render'd more subtle and Fluid. Thus if we could render Gold Fluid, in the same *Moles*, and in the same Gravity, we should have as admirable a Dissolvent as the famous Oyl of *Paracelsus*. The largest Bodies will undergo the greatest Alterations, for the nearer Bodies approach to the ultimate Solidity, the more they are chang'd: Therefore all Particles may easily pass thro' the Lungs, and we not feel Pain, but when they come into the minute, and excretory Vessels, some Particles fly off thro' the lateral Vessels, which happens in the drinking too much warm Water,

Water, for then the Vessels having lost their Tone, and Sprightliness, we fall into Faintings. Too violent Evacuations render the Blood thicker than ordinary in the large Vessels, which causes a Subsidency in the lesser, from hence arises Atrophy, because no Blood can enter in the lateral Limphatick Ducts, which often happens in immoderate Evacuati-
ons.

CHAP. VII.

Of the Gravity and Levity of the Blood.

OUR Bodies have a *Conatus* of descending towards the Center of the Earth; which *Conatus*, or Tendency, is proportion'd to their *Moles*, or Quantities, therefore all the Properties of Gravity proceed from a greater or less compacted Texture of the Parts. Solids contain but a small Fluid, which makes them more heavy than porous Bodies, which are less so, because they contain within themselves a large Quantity of fluid Air.

WHEN the Blood is first forc'd from the Heart, it is hot, and at the same Time is rarify'd; but as soon as it comes out of the Body, it grows Cold, and loses some subtile Particles, the thick ones remaining: But then we cannot make an exact Estimate of its Gravity, by Reason of the Exhalation of the subtile Parts. In different Countries, either Hot or Cold, the Blood as soon as it comes from the Body, is hot, which being then weigh'd bears the same Proportion to Water, as Twenty-six to Twenty-four; or Twenty-five, but the Mass of *Serum* to an equal Mass of Water bears the same Proportion, as Three hundred to Two hundred fifty-eight: So if I fill a Cubick-foot Vessel with *Serum*,

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and another with Blood, the *Serum* will be a sixth Part heavier; which seems to contradict Experience, since the *Serum* is the lightest Part of the Blood. But this happens by Reason of Excretion, and Cold. Too great a Levity of the Blood hath not yet been discovered, for it exceeds Water a sixth Part and Half, even when it is rarify'd by the Air, which causes it to take up more Space, but if there be any such Levity in the Blood, it must arise from its aqueous and spiritous Particles. In a Scurvy, when the Blood is compacted and saline, the Urine is very heavy, heavier tahn that of an healthy Person, because it is fix'd with a Briny-Salt, which is very excellent, and necessary to the preserving of Life, but is very hurtful when immoderately taken.

ALL Bodies that are more ponderous than the Blood, are secreted by Urine. Thus Sea-Salt being taken, will alter the Urine, and is very beneficial to the Body by dividing the Blood. Heavy Medicines, or Poisons operate, either by destroying the Parts, or by provoking too great a Secretion of the Liquids, so that Bodies that are more ponderous than our Liquids, can contribute nothing to Nutrimment, as we may observe in Sea-Salt, and in all manner of Spices.

CHAP. VIII.

Of the projectile Motion of the Blood.

WE come now to the last Property of the Blood, viz. it's projectile Motion, by which I understand that Passage which the Liquids makes in those Vessels they flow thro': And we distinguish from this Property of the Blood, the intestine Motion

tion, if there be any such, or a Fermentation, intimate to the Blood. From this projectile Motion several Diseases arise; on this Life, Health, Age, Death, &c. depend; therefore let us consider, what is able to increase, diminish, or deprave this Motion in our Body.

THIS projectile Motion may be increas'd by a violent Motion of the Body, as in Running, there generally arises a high Pulse, Sweating, Thirst, Panting, and all the Symptoms of a Fever, which will presently vanish, if the Person cease from Running; but if the Person persevere beyond his Strength, the same Symptoms will appear more violent, attended with a kind of Inflammation over his whole Body; his Urine will be like that of a Person in a high Fever; if he still hold on Running, a Gangrene happens, and at last Death. Thus from the increase of the projectile Motion of the Blood, there may be Distempers produc'd, as well as from the Alteration of the Blood. And from the various sorts of these Inflammations, chronical Diseases may arise; violent Distempers may also arise from the Diminution of this projectile Motion, which Diminution frequently produces dismal Effects, which may be occasion'd by some violent Passion of the Mind; as Fear, &c. For Instance, when at Table a Person receives bad News, his Terror and Astonishment brings a Stagnation upon his Liquids; and unless he presently take a large Quantity of some diluting Liquid, the Disorder increases. Thus we may see the Cause of several Diseases derive their Origin from the Increase or Diminution of the projectile Force of the Blood. The principal Cause of this projectile Motion of the Liquids, is in the Heart, with its contractive Force; we call it principal, because most sensible; the Heart has no Motion of itself, but what it re-

ceives from some other Parts; and thus in a Stagnation, all the Liquids are fix'd. If the Liquids in our Bodies meet with no Resistance in their Motion thro' the Channels, and if the Continuity of the Channels was not interrupted, the Liquids once put into Motion would always continue so; but there is such a Resistance, (which I shall not treat of in this Place) and the Channels are not continu'd; for the *Sinus Venosus* and the *Auriculæ*, are situated near the Heart, so that they cannot flow in a continu'd Stream, but must reside there for some Time, at which Time the Liquid rests, or there is a Discontinuance: And since no Body can be put into Motion of itself, it necessarily follows, that the Blood should receive its Motion in the same Place where it left it, and to have a fresh Tone communicated to it from thence, which Part ought to be the strongest of the Muscles; all these Offices the Heart most exactly performs, as well by the Purity, as Solidity of its Fibres, assisted by some heterogeneous Matter, by the Help of which the Heart is enabled to exert an incredible Power; therefore the Heart is the Cause of all Motion.

ANOTHER succedaneous Cause, is the alter'd Figure of the Channels, thro' which our Liquids move; for one Body doth not hinder the projectile Motion of another; if therefore the Channel be solid, and not liable to change, it will not alter the perfluent Liquid, nor will the Channel be alter'd by it; therefore in this Case, the Channel is as nothing; but something operates upon the Liquids, which causes an Alteration in the Body; but in this Case there is nothing but an Alteration of the Shape or Figure. By ocular Inspection we may see the Alteration made by Channels upon their Shape and Figure: Therefore let us consider upon what this Change or Alteration does depend. All the sanguiferous

guiferous Vessels are elastick; this Elasticity depends upon the acute Diameter of the Vessels; which Diameter is augmented by the Blood being driven thro' the Heart; so that the Heart first puts the Arteries into Motion, and then the Blood; therefore the Heart is the primary Cause of the Motion of the Blood. For, altho' the Arteries by Contraction force out the Blood; yet if no fresh Motion comes from the Heart, we should expire. When the Heart impels the Blood into an Artery, it is then extended into a Conick Figure, and the Artery resists it by its own elastick Force, and becomes hard, and the more it is disturb'd from its State of Rest, the more its Force is augmented; and since every elastick Body of it quiesces, the distending Faculty of the Heart ceases, if an Artery be left to itself, it will be contracted into such a State as not to be press'd unequally. Now the Force of the Heart distends the Diameter of the Vessels, and that Force which strengthens an Artery, operates so strongly as to render the contractile Force of the Artery equal to the extending Force of the Heart; therefore an Artery cannot be said to be of an elastick Nature, unless the Heart distends it, or disturbs it from its State of Rest; so that on this depends the Tardity, and Velocity of the Blood.

WE come now to consider, Whether the Motion of the Blood in the Heart, is caus'd by any intestine Motion, and whether such a Motion can be projectile? Which Notion most Persons have given into, except some Few that have written of *Anatomy* and *Mechanicks*. All intestine Motions (because Bodies strongly coerced, are impuls'd thro' certain *Foramina* or Pores,) may operate thro' the streight Course, or Passages, or Liquids, three Ways: First, Every Liquid may be forc'd into a projectile Motion by Heat; but there is not a sufficient Heat in the Body

Body to produce this Motion : Besides, Fishes have a cold Blood, if any warm be injected, they die. Or, Secondly, This projectile Motion, may be caus'd by Elasticity ; for elastick Bodies always endeavour to explicate themselves, unless they be restrain'd by greater Force. Thus the Blood being contain'd in the Vessels, would extend itself into a large Space, if it was not restrain'd : Now our Liquids are restrain'd by no greater Force than that of the Atmosphere, which presseth on all Parts equally ; from the ceasing of this Force, there immediately arises an Extension, which dilates the Vessels so much, which makes the extending Force equal to the prement Force : And if Elasticity be joyn'd to this Effect, we are destroy'd, or become distemper'd. Moreover, the Blood which dilates itself in the Vessel, cannot extend them, because they are press'd by the ambient Air ; therefore the Liquids contain'd, will endeavour to rush out when they meet in a Passage, or press towards the Heart ; and since the Heart contains a Liquid of the same Nature, they will mutually press each other, so that nothing can issue out at all. A third Way is, That which is caus'd by Chymical Experiments ; as, when two liquid Bodies meet in a fervid, or frigid Motion, the former of which Motion is call'd Effervescens, and the latter Ebullition. Hither also may be referr'd Fermentation, which is a coerced Motion of a Liquid, endeavouring to rush out where it can find a Passage ; or it may be term'd a windy Expansion ; but these Effects are discernable by our Senses only, and not by Ratiocination ; for no Person could understand them by Reason, unless he had seen them experimented. The same may be said of Fermentation, since no One can demonstrate it *a priori*. And since it hath never been in the Heart,

I conclude, no such Thing ought to be admitted in *Physick*.

THEREFORE there can be no Motion situated in the Blood, by the Intestines, as the Cause of its projectile Motion; all the Liquids of our Bodies are mov'd from the Blood, by the Motion of the Heart; on this (*viz.*) the Motion of the Heart, all the Changes of Motion in the Liquids depend. The Velocity of Liquids proceeds from the increase of Motion from the Heart, and their Tardity or Slowness, from diminishing that Force in the Heart, or from the Resistance of the minute Vessels, or from the Unaptness of the Liquids to Motion: Hence it follows, that Medicines that increase this Motion, must necessarily fortify the Heart, and correct the Liquids.

Now the Effect of this augmented Motion, is Heat; the *Molecule* of the Blood being closely united to each other, and one Part with a certain Force and Velocity. The only Sign of this is a Perception of an intense Heat; and by this we know the best Medicines which increase this Motion. As soon as ever the Force of the Heart is extinguish'd in any Animal, the Liquid quiesces; so that all Motion depends upon the Heart; every variation of that Motion does likewise; therefore if the Strength of the Heart be augmented, the Velocity of Motion will be also increas'd; and if the Strength of the Heart be diminish'd, there will be a lessening of that Motion.

THE Causes which provoke the Heart to contract itself, are explain'd in that Chapter, concerning Medicines which irritate the Heart and Nerves. First, Almost all the Passions of the Mind, as Joy, Desire, violent Love, accelerate the Motion of the Blood. Secondly, All Acids augment the Velocity of the Liquids, whether they be sharp, costick or alcanious,

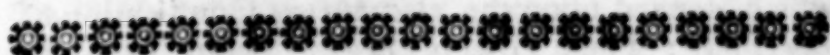
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alcanious, extractick, sudoriferous, or diuretick. Thirdly, The muscular Motion often repeated, augments the Celerity of the Liquids. Thus Persons that lead a sedentary Life, have a slow Pulse; but labouring Persons have a quick one; there is no Motion contributes more to this than Respiration.

THOSE Things which work a contrary Effect, diminish this Velocity, viz. all those Affections of the Mind which suppress Motion, Idleness, a Discontinuance of the muscular Motion, and an Interruption of Respiration. These Things being premised, we come now to treat of the Efficacy and Power of Medicines.



BOOK



BOOK II.

CHAP. I.

Of Medicines in general.

BEFORE we come to explain the Power and Virtues of Medicines, it will not be amiss briefly to premise the Opinion of the Ancients concerning that Matter. The principal Person amongst them, who hath writ of Medicines, is *Galen*. As for *Dioscorides*, *Oribasius*, &c. they have made no Additions to *Galen's* Method.

GALEN and his Followers affirm, That the Virtues or Powers of all Medicines, are reducible to Four Classes or Heads; to the first belong the Elementary Virtues; to the second, the Material; to the third, the Singular or Specifick; to the fourth, the Virtues of the whole Substance, or of the Qualities deduc'd from the rest by elementary Powers, or Virtues; they mean Qualities in Bodies distinct from each other. The Properties of these Qualities are four, Hot, Cold, Moist and Dry. Now there is no Body perfectly hot, or perfectly cold, so that a moist Body yields Air to a hot one, the dry affords Fire to a hot, the moist gives Water to the cold, and the dry furnishes the cold with Earth. Those Bodies in which these Qualities occur, *Galen* calls Elements; the moist and dry, the hot and cold can never be joyn'd to each other. So that those

those are called elementary Powers or Virtues; which depend upon the elementary Constitution of any Body: These Powers always operate from the primary Qualities. The Ancients divide them into four Degrees. The first is, that which is so correspondent with the *Equilibrium* of our Bodies, that when in Health we scarce perceive any Alteration by it. Thus Roses and Violets are term'd Coolers in the first Degree of Moisture, which altho' this Effect is not perceivable to a healthy Body, yet it is to one disorder'd. The second Degree is, when the Force or Strength of any Body reaches so far as to be perceived by a healthy Body, yet not so as to render it distemper'd. Such for Instance is the Heat we find in Cinnamon, Cassia, &c. The third Degree is, when the Force is so prevalent as to become hurtful to the Body, and make an Alteration in it, yet is not quite mortal and destructive. Such Virtues are for Instance in Peppers. These Things are to be exhibited in a Disease contrary to their Nature. The fourth Degree is called destructive or mortal, as we find in *Euphorbium* and other Poisons.

IN the second Head, As to the Powers and Virtues of Medicines, they assert them to be Material, because not many Powers depend upon a particular Proportion of Elements, because they are inherent in the Matter of which a Medicine is compos'd, they called them manifest. They are all those Powers which flow from the Combination of the former Qualities: These second Qualities are emollient, incrassating, attenuating, and are term'd material. The third Head contains specifick Powers, which they supposed to operate from the joynt Powers of the first and second Head, to wit, according to the different structure of Matter, and according to the different Proportion of the Elements.

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They are also term'd Particular when in their Operation they affect any particular Part of the Body. Such are for Instance, those Things which alter or put into Motion the different Liquids of the Body, which generate Corruption, and Flesh which grows where a Wound hath been, which propagate Milk and Seed, that purge electively, and are said to act specifically by the Powers of the third Class. To this Class are referable Medicines Cephalick, Hepatick, Uterine, &c. Occult Qualities constitute the fourth Class, which were perceptable by Experiments, and which they could not account for. Thus they affirmed *Opium* caused sleep, because it had a Soporifick Power. To this Class the Powers of Alexipharmicks or Medicines expelling Poison are referr'd.

BUT all that *Galenical Hypothesis* falls to the Ground; because they assert, There are certain general Qualities in Bodies, that have a Privilege above the rest. But since it is plain there are none such, there none of those Qualities can be apply'd; so if a Vein be open'd, there none of those Qualities can be apply'd. After all, these Distinctions of *Galen* seem in my Opinion to favour more of Subtily than Truth. We term every Thing a Medicine, which being apply'd to the living Body, recovers it from a State of Sickneſs to a State of Health. There are three Sorts of Medicines: First, Some which act only upon the Solids. Secondly, Some that act only upon the Fluids. And Thirdly, Others which act upon both together. Medicines comprehended under the first Sort, either destroy the Cohesion of Parts, or alter the Channels. But the Passages cannot be alter'd, unless the Figure of the Channel be changed too. Medicines contain'd under the second Head either alter the Fluids in the Body, or draw them out of the Body, which made
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the Ancients divide them into Medicines alterative and purgative. The third Head comprehends almost all Sorts of Medicines; because scarce any Liquid can be so chang'd, as that the Solid shall not be affected. Likewise & *vice versa*. Boerhave.

THEREFORE I assert, That the very highest external Motion, and which we know is purely mechanical, is able to produce all manner of Alterations in the Solids of our Bodies, as well as any Medicine whatever. Let us take a Person in perfect Health, and tickle him with a Feather within his Nostrils, an inevitable Convulsion will arise, which turns to a Sneezing, which also happens against the Man's Will. All this is effected by a mechanick Cause, which the Mind cannot be able to restrain; then this Person will fall into a very strong Expiration, attended with a Sternutation, proceeding not only from the Motion of the Muscles of Respiration, but likewise from the Motion of the Muscles of the Shoulders, of the *Thorax*, of the *Abdomen*, of the *Diaphragm*, of the *Lungs*, of the *Scapula*, and of the *Clavicula*; so that a very great Alteration must be necessarily impress'd on all the Liquids contain'd in those Parts. From hence arise very great and various Excretions of the Liquids from the Eyes, from the Nostrils, from the Mouth, Excretions of the Seed, of the Humours contain'd in the *aspera Arteria*, of Sweat, of Urine, of the *Alvus*, of the *Sputum*, of the Blood; and so in the Conclusion, there is a Convulsion of the whole human Frame. The same may be effected by Medicine: As for Example; If the thousandth Part of a Grain of *Euphorbium* be snuff'd up the Nostrils, for a considerable Time it will cause violent Sneezings, and unless Milk be afterwards suck'd up the Nose, would be the Occasion of Convulsions.

I AFFIRM thirdly, The various Motions of the Muscles and Vessels, are capable of Changing the Liquids, and even the very Solids, altho' the Motion be only apply'd externally after a manner purely mechanical, and without any internal Application; so that there shall happen a various Stagnation and Convulsion when the Vessels are straitned, attended with a Resolution of the Parts and an Extravasation. Thus from Sneezing alone, all manner of Alterations may be produc'd in the Liquids. The Doctrine of Liquids will demonstrate, that they may suffer an Alteration three Ways.

1st, BECAUSE all their Parts may be alter'd or chang'd, as if they were solid Parts. Which may be done either by the Change of the Form or Figure of the Body, or Immutation of the Pores, or by a Resolution of them into the constituent Parts, which depends upon an outward Compression, and Evacuation, or Revulsion from the hinder Part. Hence follows this Corollary. The Figure and Pressure of the Vessels being chang'd, the Liquids are also alter'd, as by a strong Inspiration or Breathing into.

2dly, A LIQUID, as it consists of an Amassment of Parts, becometh thinner, not by Rubbing, or by the Action of the Superficies of circumambient Bodies, nor by the Immission of a Liquid, which can scarce happen in this Case, or when a Part being glutinous before interpos'd, is now expell'd; so that a muscular Motion is capable of altering a Liquid by all these Ways, and to change the Solids and Fluids, so as to make a Stagnation and Coction of the Blood, a Condensation and Concretion from the Expression of a Liquid from the Solids. A Resolution of what is interpos'd between the Liquid, by Rubbing comes an Extravasation from the ultimate Boundaries, and the greatest Impression is made upon the ultimate End from whence it bursts.

I AFFIRM in the third Place, That only by the Motion of the Mind, may be produc'd all manner of Effects in Bodies, without the Application of any thing corporeal. Let us suppose a very healthy Body, but liable to Alterations of the nervous Kind; let Fear, Grief, or Anger be excited in this Body, when in its greatest Tranquillity: then that Body, which in the space of twenty-four Hours had increas'd to six Pounds in Nutriment, shall waste seven or eight Pounds, and more: The Person thus affected, will be forc'd to void a vast Quantity of Urine, which will be perfectly without Smell, and without Taste, the thinnest Parts of the Blood come out by a violent Sweating, and the grosser Parts remain, which are capable of doing great Damage. So that the Property of Fear, is to cause a loosning of the *Alvus*. Violent Anger hath the same Effect. As for the Consequences, you may consult *Sydenham*. A *Diarrhœa* generally follows. The like happens in extream Fear, and a vast Quantity of Sweat bursts out. Squeamish People, if you happen to talk of the Thing they nauseate, presently undergo Reachings, Excretion of the *Saliva*; at the same time they sweat, their Eyes water, and are taken with a Loosness. Thus likewise from the sole Motion of the Body, in those who go to Sea, tho' before very healthy, Nauseousness, Paleness, Vomiting, Anxiety, and such-like Symptoms happen; and sometimes Choler, in Passionate People, when it is infus'd into the Intestines, causes a *Diarrhœa*.

THEN, I say in the fourth Place, That the Motion which thus changes all Things in our Blood, arises from little intens'd Bodies, apply'd either externally or internally. The Demonstration thereof is manifest from some peculiar Temperament or Idiosyncrasy of particular Persons, who
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cannot endure Cats, Mice, Cheese, Civet, &c. but immediately are full of Anxiety and Squeamishness, fall into Faintings and Swoonings, attended with Sweatings and Vomiting, as if they had took Emeticks, or something very nauseous; all which often happens by the taking the thousandth Part of one Grain of Musk, altho' that Grain hath lain in a Chamber for six Months before; which may chance to several Persons.

THE Rays of Light have the same Effect upon some Persons; or the Sight of a purging Cup or any other nauseous Thing, will cause a loathing in those Persons which are very much accusom'd to them. I assert fifthly, That those Bodies term'd Medicines may be dissolv'd into a Tenuity beyond all Imagination, and yet retain their ordinary Force. Thus in one Grain of ☉, or ☿ dissolv'd in a Liquid, may be divided into Four thousand Parts, and yet every Particle of ☉, or ☿ shall participate with some Particle of the Body from whence it was taken, and the minute Parts may be observed by a Microscope. The honourable Mr. Boyle demonstrates the same Thing in his Experiment of the Silk-Worm, whose Silk was extended to Three hundred Yards, altho' the Bag of the Silk-Worm weigh'd but two Grains; and *Lewenboeck* has plainly shewn, that the Thread which is spun by a Silk-Worm, is Threefold. Refiners tell us that if one Grain of Gold be mix'd with three Pound of Silver, every Grain of the Silver will contain a due Proportion of the Gold, and this is the way whereby they discover, what Quantity of precious Metal is contain'd in a base one. Thus the Bodies of Medicines are capable of being divided into such minute Parts, as to exceed all Imagination. If one grain of Gold be dissolved into four Ounces of rectify'd Spirit of Wine, the Solution of the Metal is

so great, that in every Particle of the Wine, there sticks a Particle of the Gold : and since the Proportion of one Grain of Gold, to four Ounces of Wine, is as one to four thousand eight hundred, our Imagination cannot conceive how far this Division may be continu'd, and the Spirit of Gold still remain. Thus Copper in the same Proportion will change the Colour of Water, which causes a Mixture of the Copper with the minute Particles of the Water, so that in the Solutions of Metals, the Metals always retain their own Nature ; but we cannot affirm the same of Vegetables. this is the Reason that Metals being reduc'd into such small Particles as to be render'd fluid in the Body, cause such wonderful Effects. Concerning the Division of the Silk-Worms Silk, read *Boyle* ; nevertheless it is incredible to think, how far even Vegetables may be divided. One Grain of Saffron being reduc'd into a dry Extract, will tinge ten Ounces of the Spirit of Wine, and alter its Colour, and the Wine will have a Smell of Saffron, whose Particles will be diffus'd into 40—800 Spaces than before, and nevertheless retain their own Colour and Smell. Secondly, Oyl of Cinnamon will diffuse an Odour to the Distance of six or seven Feet, or more, if it be warm'd, which will last several Hours : How great therefore must the Division of its Particles be ! Thus likewise one Grain of *Castorium* will scent a large Space, and its Particles if diaphanous, will lie conceal'd in all Bodies, but discover their Presence by the Effects which they cause ; so if a Scruple of well prepared Antimony, is infused into eight Pound of Wine, it will disturb the Stomach and cause a Vomiting. Now the Chymists assert, that this Operation proceeds from a magnetick Power (of which Opinion was *Helmont*.) But as in Gold, so also in Antimony the

the Particles which are conceal'd from our Senses may be dissolv'd, and nevertheless exert their Force in the Body when they come to the minute Vessels.

THE same may be said of the Crocus of Antimony : These Particles as they may be apply'd to different Nerves, produce different Effects. *Turbith Mineral* is a Purger of Water ; but if apply'd to the olfactory Nerves causes a Sternutation, and expels the Relicks of the *Lues Venerea*, and likewise produces all Kinds of Secretions. Thus a confirm'd Cataract has been cur'd by it, as *Boyle* affirms ; but internally it operates little, only causes a Languor of the Stomach ; this Diversity of Operation may depend on infinite probable Causes, and on several, which we know not of. It extirpates by vomit the Relicks of a Gonorrhœa ; it is of excellent use in curing Cachexies, Ulcers, and removing tuberosous Flesh. If one, or one and a half of a Grain of this *Turbith Mineral* be taken fasting with a sternutory Powder, it causes a Swelling in the Head, Vomiting, Diarrhœa, a Tumor in the Guts, and Sweating, &c. but in the Space of a few Days all Things will return to their pristine State, and a Cataract in the Eye may be cured by this Means. these Effects cannot be demonstrated *a priori*, tho' their Causes may be various ; as for Instance, First the Nudity of a Nerve, as the Nerves are more or less laid open, or bare from their Tunicks, or the thinner or finer those Tunicks are, different Operations may be produc'd by the Applications of Medicines ; thus the Olfactory Nerves the more naked they are, the more violently are they affected, and produce such great Alterations in the Body, which are attended with dangerous and dreadful Consequences. Secondly, The second Reason may be, that the Nerves being nearer to their Original, are affected more

strongly by Medicines, and themselves likewise more strongly affect the whole Body. Thirdly, A third Cause may be the Communication of one Nerve with another, which produceth different Effects in our Bodies: for several Nerves are collected together in that Membrane which is called *Ganglia*, from whence they are forcibly turn'd into the other *Viscera*, as *Willis* and *Lewenboek* inform us, in their Discourses of the external Nerves; but the Effect is different, when only one single Nerve is attacked by Medicines, than when a Complication. And fourthly, As the Nerve on which is impress'd the Force of a Medicine, proceeds to the Emunctories, Emissaries, and different Glandules of the Bodies, so it produceth different Effects; if it go to the Heart, a Stagnation generally ariseth; if to the Glandules, a Secretion; if it makes its way to the Tunicles of the Eyes, it causes Tears, and in the Mouth a Coagulation of the Spittle.

C H A P. II.

A General Scheme of Medicines.

ALL Medicines may be divided into three Sorts, either into Liquids only, or Solids only, or into both Liquids and Solids operating together.

I ASSERT in the first Place, That the ultimate Solid of our Body is a Solid purely Mathematical, without any Tube or Pipe for the Liquids to flow thro', therefore Medicines that operate upon such Solids as these (thro' which we affirm no Liquids can be convey'd) are first such as stimulate or move them without destroying the Cohesion of their Parts. Secondly, Contracting Medicines which Cause the ultimate solid Parts to be less extended than

than they were before, by drawing and uniting them together, yet without destroying them. Thirdly, Such Medicines as loosen or extend the Parts, whereby the solid Particles of a Body that are closely interwoven within each other, are put into Motion, and extended into a larger Compass every way, whilst any Part of them is capable of Dilatation, and on this depends their Flexibility. Every laxative Medicine works this Effect on the Solid Parts, as to cause the Surfaces of their Contacts to be lengthen'd, dilated, and put into Motion. Fourthly, Medicines Chirurgical, Specifical and Cicatrizing, and Sarcoticks which render the Parts Callous. Fifthly, Medicines dissolving. All Bodies are compos'd of other Bodies, and may be resolv'd into them again. A Solution happens when a laxative Medicine draws the Parts too much asunder, and destroys their Cohesion. Medicines which dissolve, may be reduc'd to these Heads; First, Rubefying Medicines which inflame the Parts but very little. secondly, Vesicatorious or Epispastick Medicines which destroy the Limphatick Vessels. Thirdly, Medicines Escarotick that raise a Crust or Shell over the Flesh, which destroy both the Sanguiferous and Limphatick Vessels. Fourthly, Corrosive Medicines. Fifthly, Burning or Caustick. Sixthly, Putrefying or Septick Medicines, which convert both the Solids and Liquids into putrid Liquids.

I ASSERT Secondly, That a Liquid is such only in Respect to the Organs of our Bodies; for it is in itself a Composition of solid Bodies. Those Medicines which operate upon the Fluids, constitute the second Class of Medicines. Now a Fluid may be considered in a double Capacity, either as consisting of little Solids, or as constituting one fluid Mass. But the least Solids are capable of being encreased, diminish'd or chang'd in their Figure. To this

Class belong first, Attenuating Medicines, which have a Power of infusing Liquids into many of the lesser Muscles.

2^{dly}, MEDICINES condensing or incrassating, which unite and compact the loose and fluid Particles into one Mass, whether Solid or Fluid. We have an Instance of a condensing Medicine from the Congelation of Water in frosty Weather, and of an incrassating Medicine, which is, when a Firmness is impress'd upon the Parts, which were before loose and separated, as when a wet Skin dry'd before the Fire, grows stiff, and upon the Touch, is broken. The same happens in Medicines.

3^{dly}, MEDICINES exciting Acrimony, which, like Air, by their Strength affect the minutest Points of the Body in their descending into it. All Medicines which have Power to turn the globulous Particles of the Blood into Acids, are said to induce Acrimony. To this Head belong all putrifying Liquids, which cause a Foulness, and create Destruction, whose Force consists in this, That all the solid, fluid, and oily Particles, are render'd volatile. Fourthly, Medicines asswaging and blunting, which incrassate the smallest acid Particles. Fifthly, Medicines altering; for we often find an Alteration in Fluids, the Nature of which we are ignorant of.

6^{tly}, DILUTING Medicines, which operate upon the whole *Moles* or Bulk: If two Particles cohere only in few Points of Contact, they are call'd a fluid Body; those Particles which cohere in various Contacts, are call'd Solids, which suffer Contact with a Struggling, and resist their Removal from the same Contact; so that a Dissolution must needs follow; first by changing the Points of Contact; secondly, by changing the Contacts themselves; thirdly, by interposing a third Body, which keeps the
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two Bodies separate; fourthly, by removing the external Force which retains Bodies to Contact, as the *Parisians* have discover'd by very late Observations. If two Bodies touch each other in a perfect Plane, it is requisite towards moving them from their Contact, that the operating Movement should sustain a third Part of the super-incumbent Weight. Thus if you take two plain Glasses and place one upon the other, and upon them a Weight of thirty Pounds, the Force of ten Pounds is requisite to remove them from each other. Therefore diluting Medicines are those which separate the Parts, that would otherwise cohere, from their mutual Contact, by interposing a third Body, not cohering with the other two; as Clay put into Water is dissolv'd, and may pass thro' the minutest Channels.

7thly, COAGULATING Medicines which fix the Particles that before were fluid: This may be effected, first, by interposing some glutinous Body; or secondly, by exhaling the diluting Body; or thirdly, by uniting the Particles to each other.

8thly, MOVING Medicines, which either move particular Parts, or the whole consistent Mass together. Thirdly, The third Class comprehends those Medicines which operate upon Solids and Fluids jointly, which are again subdivided into five Heads.

THE first Head contains all those Medicines which have been summ'd up in the first and second Class.

THE second Head contains, first, provocative Medicines, which separate Urine, Sweat, Seed, Milk, &c. from the whole Mass. Secondly, Medicines which promote Excretion, which extract a particular Liquid from an universal Liquid, and force it out of the Body; as are Medicines exciting Tears, Sneezing Medicines expelling Phlegm, Ptarmix, or Masticatories, which cause a voiding of Spittle; Mercurial

Mercurial Medicines, which expel the Serum, Phlegm from the Lungs, and Larinx, Cologogues, and Hydrogogues, or Medicines which drive out Choler and Serum by the *Alvus*; Laxative Medicines, which loosen the Fibres of the Intestines, and expel Filth and Impurities of the Body, Lubricating Medicines, Diureticks, Sudorificks, Diaphoreticks, which cause the Perspiration, mention'd by *Sanctorius*; Emenonagogick Medicines, which expel the *Lochia*, which cause Abortion, which excite the *Menses*, and drive out the After-Birth.

UNDER the third Head are contain'd, first, Attractive Medicines, which convey a Fluid from one Place into another; secondly, Repercussive, which drive or force a Liquid situated in the outward Parts, more inward; thirdly, Callifying Medicines, which take away preternatural Cold; fourthly, Refrigerating, which remove preternatural Heat; fifthly Emollient and maturating, which dispose a Liquid to an Efflux; sixthly, Suppurating, which bring the Liquid to an homogeneous Nature; seventhly, Indurating Medicines, which harden the Solids, when too loose, and thicken the Liquids, when too thin; eighthly, Resolving and Discussive, which chiefly attenuate either Matter extravasated, or stagnating in the Vessels, so as to cause an Efflux, and by stimulating the feeble Vessels, the loosen'd Matter is forc'd out in the Circulation of the Liquid; and operative, which attenuate and expel the Cause, which stops the Cavity of the Vessel; ninthly, Astringent Medicines, which bind up Apertures of the Vessels; tenthly, Stypticks, which close the Apertures of the Vessels by the Interposition of some Body; eleventhly, Purgatives, which loosen and expel Liquids concentered in any Part; twelfthly, Detergent Medicines, which consume
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what is superfluous; in the thirteenth place, Cleansing Medicines, which act so forcibly upon the Body, as to descend into the inmost Parts; in the fourteenth place, Eroding Medicines, which being apply'd to the Parts of any living Body, eat into them.

THE fourth Head comprehends under its Medicines, first, Topical, which by being apply'd to any particular Place, exert there a different Power, than if apply'd to another Part. They may be reduc'd to this Class of Medicines which operate upon Solids and Fluids joyn'tly, both which the Ancients distinguish'd into Hot and Cold, Moist and Dry. Now let us consider these Topical Medicines according to the situation of their Parts. First, We call those Cephalick, which remove the Distempers in the Head, but will not operate after the same manner on the other Parts of the Body. These Distempers of the Head arise from a distending matter, which causes Impediments in the Circulation of the Blood: Gum Armoniack and Syrup of Violets, are sometimes Cephalick, and immediately remove Pains in the Head; but in this Place they operate upon Solids and Fluids together. So that they cannot be call'd, Specifick and Singular. Secondly, Ophthalmicks, or Medicines which cure Pains or Distempers in the Eyes, as in a hot Cataract, if an Inflammation happens, Eyebright will remove it; if it be a cold one, Plantain-Water is good, and white, smooth'd Troches. Thirdly, Odontalgicks which remove Pains in the Teeth. Fourthly, Otalgick and Otologick Medicines, which cure Pains in the Ears: In this Part the Membranes are very sensible and intense, and if an Inflammation happen here, the Pain is intolerable, and Oyl of Sweet-Almonds, is the best Remedy, which relaxes the Membranes, and removes the Pain. If Putrefaction happen in the Face, and runs to the Gums, and there should
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rise there a Gangrene, these Specifick Remedies remove the Inflammation in general; but they are very much deceiv'd that trust to them intirely. Decoction of Apples is the best Remedy in a Gangrene; or let the Party affected, be touch'd with Oyl of Tartar Perdiliquium, which is the best Way of driving out the Pain; and Oyl of Vitriol is recommended because it cleanseth the Teeth. Fifthly, Arteriack Medicines, which soften the sharp Humours of the *Aspera Arteria*, as Honey, Oyl, Syrup of Maidenhair; but they are seldom beneficial, because it often happens, that the Glandulous Tumour is internally deficient. A frequent drinking of warm Water is very good, a Decoction of Oats, and Emollients may be good; but Poppies are of small Worth. Sixthly, Theriack or Pulmonick Medicines, which the Ancients divided into Hot and Cold, as Expectoratives in a Cough, which relax the Passages of the *Peripneumona* and Intercoastal Parts, and discharge the heterogeneous Matter; They affirm, That the best Remedy for the Lungs, is Comfery. There are other noted Medicines for the Lungs, as Hyssop, Valerian, and Horehound, &c. All Aromaticks cause the same Effects. *Dioscorides* recommended a Lenitive Electuary of Sulphur, and call'd it Balsam of the Lungs; *Galen* advises the same; but it is of little Benefit, because it is hard to be dissolv'd in the Body; and if it be dissolv'd, and becomes balsamick, if given in Inflammatory Distempers, it increases the Disease, by increasing Heat; in Cold Distempers, twenty Drops may be of Use; and Oyl of Sulphur per Campanum, is an excellent Remedy, when an Inflammation of the Lungs causes a Gangrene, by reason of some alcalinous Matter. Eighthly, Cardiac Medicines, are either Hot or Cold; in Hot Distempers, the Juice of Citrons; in Cold, Oyls and

and Aromatics, and volatile Salts, are very good Remedies. Cardiacs may be divided into two Sorts, either such as augment, or such as stimulate the Liquids. Ninthly, Medicines Stomachick are consider'd either as Hot or Cold; in Cold Diseases Wormwood and the lesser Centaury are good. Tenthly, Medicines which remove Obstructions in the Spleen and Viscera, as *Vitrum Martis*, Mercurials, and Mineral Waters. Coolers are a strong Dissolvent, as Lattice, Figwort, and Hemp-Agrimony; there is nothing specifick or singular in them. Twelfthly, Intestine Medicines, which are either Carminative, or expel Wind, or Antitelmintick, which destroy Worms. Carminative Medicine, have somewhat particular in them, *viz.* That they expel intercepted Air; hence it is requisite, That the Space wherein this Air is detain'd, should be clos'd on both Sides, which Air by Reason of the Heat of the Body, expands itself, and distends the Place where it is lodg'd, and causeth Pain; the distended Place immediately contracts itself, and the Intestines seem as if rend asunder, the Circulation of the Blood is obstructed, from whence an Inflammation arises, which is increas'd by a successive Distension, Dilatation, and Contraction of the Place. the only Cure is to expel the *Flatus*, which *Flatus* receives no Poison or Detriment from the Nature of the intercepted Matter. Now to give you an Instance of what I have said, if a Person is so violently tormented with a flatulent Colick; which is so called from the closing of the Colon; it is impossible to give a Clyster to that Person, because the Sphincter Muscle of the *Anus* is so contracted, that the Pipe cannot enter, at which Time the Pain is exquisite, but after some few Grumblings in the Guts, the Pain ceases, the Fundament is relaxed, and the Clyster may be apply'd. Those Medicines
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are term'd Carminative, which discuss Wind by a certain imaginary Heat. Every Medicine which mollifies or asswages the Gripings in the Guts, is Carminative, which is generally very foetid, as Opium, and Opiats, and those Medicines which suck up those Acids from whence the Contraction of the Guts sprung. Thus if any one take Poyson, the Belly will immediately swell, and nothing will pass thro'; this is reasonably thought to arise from Effervescence, because the Symptoms are remov'd, by absorbing the Cause which stimulates the Parts, by relaxing the Parts with oily Medicines. Hysterick Women, and Men that are troubled with the Spleen, are most subject to these Flatulencies. Now it is plain that the Sphincter of the *Ventriculus* is so contracted, that none of the intercepted Acid Particles can have a Vent upwards, or downwards, so that the Wind becomes more dilated by the Heat of the Body, and the *Aspera Arteria* is put into Motion, which Causes a Sense of Suffocation. In these Cases Eructations give the greatest ease, because they remove the Cause of the Distemper; volatile Salts, Opium, *Asa foetida*, and the drinking of warm Water, are very efficacious to pacify these griping Pains; a Decoction of Rue and Sage, and most Alcalies are likewise excellent Remedies.

THE other Sort of intestinal Medicines are such as destroy Worms which stick in the Intestines Proper Medicines against Worms contain nothing particular in them, Care ought to be taken that too violent Purges, and sharp Emeticks be not given, because they hurt the Reins. The Heads of Snakes fry'd with Butter, by their Sharpness will expel Worms, if taken Fasting. Shell-fish and Oysters shells beat to Powder are more effective than all the cry'd up Medicines that are bitter, (according
to

to the Observation of *Rhead*) which altho' they have a great Name, are not so powerful in expelling Worms. Honey is an excellent Medicine against them. Twelfthly, Hepatick Medicines, of which the Ancients talk so much, are all aperitive Medicines; Medicinal Waters, opening Salts of Nitre, Salt of Policknemon, a Nitrous Herb, Hemp, Agrimony, Cichory. In the thirteenth Place, Cystick Medicines, which purge the Gall bladder, such are strong Purges of a Yellow Colour, as Rhea, a Root that purges more than Rubarb, all Hepaticks, and diluting Medicines are likewise Cystick. Fourteenly, Splenetick Medicines, Chalybeats are the best. In the fiftteenth Place, Misenterick Medicines, which have been found out by Modern Authors, are either Saline, Saponatious, Aromatick, or Stimulating. Sixteenth Place, Nephriticks either expel the Stones from the Reins. Lithonthripticks break the Stone, and are either diluting Medicines, as Water, Emollient, as Oyl, and stimulating as Salt. In the Seventeenth Place, Hystericks are either strong Purgers, or asswaging Medicines, for all these Distempers arise either from too violent, or too sluggish an Influx of the Spirits. In the eighteenth Place, Arthritick Medicines, which are appropriated to the Nerves and Ligaments.

UNDER the fifth Head are comprehended Antidotes which weaken the Force of Poison: they are called Alexipharmicks, and operate either upon the Solids or Fluids separately, or on both together. all Antidotes operate after the same manner, (*viz.*) they induce an Inflammation, a Gangrene, *Sphacelus*. The Force of Poison is expelled, either by general Demulcents, as oily, aqueous and glutinous Medicines, or by some particular Antidotes; thus if you inject one Ounce of Oyl of Vitriol into any Animal, it will cause a violent Inflammation,

tion and Gangrene, and in a short Time Death, but if you mingle it with a good Quantity of Water, you may take it safely, if you mix one Drachm of Rue, or Salt of *Tartar*, all its poisonous Qualities will be asswaged.

C H A P. III.

Of stimulating Medicines.

BY a Stimulating Medicine, we understand such a one as excites the Fibres which are employ'd about Motion, into violent Oscillatorious Motions. Now that the Motion of such a Fibre should be increas'd, it is requisite that there be an additional Motion, in that Point of the Fibre where the Motion first began; an Oscillatorious Motion is such an one as dilates, and contracts a Vessel by turns. The Cause of this additional Motion in that Part, is some loose Particles, which by its Force rushing into the stimulated Particle, pushes its Fibre beyond its natural Stretch, and so the Vessel being reduced to its utmost Extension, must necessarily desist, and then the Fibre by its own elastick Nature, contracts itself, which happens by a reciprocal Oscillatorious Motion; the Consequence of all this, is either Rest or Destruction; for if this Force of Motion be continu'd, it destroys the Part affected. The first Sort of Stimulating Medicines, is when the Cause of this additional Motion shall acquire such a fix'd Station in any Place, as to make the Motion languid of itself. Now the Impulse of the impell'd Liquid causes the Particle to operate freely. Arsenick of itself is dry, and if it be apply'd to the Body in such a manner as to be kept in that State, it will have no more Effect than a piece of Wood; but

but as soon as the Particles are render'd liquid, or are put in Motion by Heat, it tears the whole Part to which it adheres, or if taken inwardly it cleaves like a Wedge, and is the Cause of violent Oscillatorious Motion. All Medicines are comprehended under this Head, except some few. External Stimulators are, external Heat, Cold, Wounds, Frictions, and Motions in the Parts, and Fomentations. The second Sort of Stimulating Medicines, consist of two Particles; one affix'd in the Part, and the other external, which is forc'd without the Parts by the Motion of a vital Liquid. For at the same time that the Heart ceases from Beating, the part contracts itself, and receives reciprocal Pulsation, from a reciprocal Influx, which may remain for some time different from those of a former Sort. Under a third Sort of Stimulators, are contain'd all Degrees of Slowness, and Yawnings, Heats, Cold, Alteration of Diet, slight Attrition, the Diminution of Secretions and Excretions, the Augmentation, or Diminution of the trajectile Motion of our Liquids, upon almost all Stimulating Medicines operate, Purgatives, Diureticks, Sudorificks, Aperitives, are almost all stimulating; and so are Emeticks.

THE Conditions which are requisite to constitute the Nature of stimulating Medicines, are these following, *viz.* First, it is requisite that the stimulating Body should be so thin and fine, as to be able to penetrate into the Cavities of the Channels, and to fix themselves in the very Passages which are in the Surfaces of the lesser Channels, Secondly, so great an Acrimony is requisite in these minute stimulating Bodies, whereby they may be able to clear a Passage, and fix themselves in the Parts. Thirdly, This acrid and thin Body ought to be so large, that it may have an extraeminent Part; for otherwise,

wise, it would be only Food, and the stimulated Part would not be affected by it. Thus the minutest Bodies pass thro' our Bodies without any Detriment; therefore it is necessary that it should be of such a Form as I describ'd. Fourthly, It ought to be so tenacious as to stick for some time in the Parts where it is fix'd; for if it be immediately expell'd, it is only a Stimulator of the first Degree, and not of the second. Such Stimulators are all vulnerative Causes, which dissolve the Continuity of the Channels by one quick Stroke; every inherent Spicula are such Causes; as the Stings of Nettles, when they first fix themselves in any Part, do not pain, but afterwards inflame it; the same may be said of all small Bodies which stick close to any Part, all Kinds of Sea-Salt, whether native or fossile, Nitre, Borax, Sal Armoniack, and Allum; all Kinds of Vitriols, artificial Salts, which the Chymists call Essential; Medicinal Salts, some of which are produc'd by Art, and are reducible to Salt of Nitre, or Tartar; likewise Spirits of Sulphur, which are produc'd by Campanum; the Medicinal Tachenius, Alcalious Salts, Salts produc'd by Fermentation, as acid Salts of Tartar; lastly, Alcalious volatile Salts of Animals, are all stimulating, because they excite a violent Motion. All Soaps, either natural or artificial; all which consist of an alcalious Oyl, belong to this Head; such are almost all natural Juices of Plants; to this Head are all Spirits of fermented Vegetables reducible. That what we call *Allumen Plumosum*, tho' it has no Taste nor Smell, is a sensible Species of Chrystal, and if apply'd to our Bodies, will cause an intolerable Itching, and force us to scratch till the Blood gushes out. Hither also may be reduc'd the *Sal volatile Oleosum* of *Sylvius*, the Oyl of *Storckoneus*; and Medicines compos'd of Turpentine and Salt; all Spirits, either of Animals, or Vegetables, produc'd

produc'd by Fermentation, and several mix'd Waters.

ALL Kind of Sulphurs when resolv'd in Precipitation, and all Metallick Salts, are like Gold dissolv'd in *Aqua Regia*, viz. they become crystalline and stimulating. This is true of Silver, and other Metals, if dissolv'd in proper Menstruums, altho' they are of themselves gentle.

THE Application of all Heat and Cold to our Bodies, are reduc'd to this Head. The Experiment of Mr. Boyle demonstrates, That Cold consists of very minute *Clavi*, which closely unite and compact Bodies together; and when the Cold is first felt, it causes a violent Stimulation; afterwards, when the *Spicula* are infix'd, the Pain decreases; but upon the approach of Heat, an intolerable Pain is felt, and there is great Danger of a Gangrene, when the *Spicula* are drawn out of the Body, especially if the Heat come to it on a sudden. Thus we plainly see in Apples that are frozen, if they are suddenly put to the Fire, their whole Structure flies asunder, as if they labour'd under a *Sphacelus*. You may consult *Bartholine* and *Rubekius*, concerning the Affections of Cold upon the Parts of the Bodies in Northern Countries. All internal and external mechanick Motions, which augment the Force of the Body, are Stimulators, and belong to this Class.

CHAP. IV.

Of Contracting Medicines.

WE must suppose this Contraction happens in the ultimate Particles; otherwise there would arise Confusion: Therefore this Contracting Force is that whereby two Points in any Fibre,

are forc'd from a remote Contact, into one more contiguous. Here it will be proper to take Notice, that the ultimate Parts cohere in very minute Surfaces; now the contracting Cause in the minute Vessels, which forces the minute ultimate Particles to approach nearer towards each other, is unknown; but the Physical Reasons why they should touch each other mutually in a larger Surface than before, are, first a Dissolution of the minute Fibres in all the natural Parts, which by being retracted, may be shortned, and so have a Propension to Contraction. Hither may be reduc'd all Costicks and Corrosives, Saline and Acid Bodies. Now since our Bodies consist of innumerable Particles, which are incredibly small, it is plain, the Medicines which reach those Parts, must operate by corroding and dissolving them, or by removing their Points of Contact.

THE second Cause may be, when Medicines by a violent Force, distending or stimulating the Vessels, cause their Diameter to become larger in Latitude, but less in Longitude; from whence arises a Contraction in the Length. Whatsoever very much fills, and thrusts out a Vessel, affects those Parts which undergo the greatest Suppression, which are the Sides upon which the Pressure is made, by several Points of an acute Angle: Thus if sound Flesh be cut, there happens a Contraction, and if it be swell'd by Repletion, or Inflammation, and then cut, the Contraction will be greater, and the Separation of the Parts larger, and the Closure of the injur'd Vessels will be more streight, and the Lips of a Wound will often look livid and gangrenous. Other Contracting Medicines operate vulneratively, as in a Stillicidium of the Arteries and Nerves, if one of them be cut, it contracts itself, and the Distillation ceases. Medicines will cause the same in the minute Vessels: Thus some Alcohol by their acrimonious

Natures

Natures separate the Vessels, which by contracting themselves hinder the Distillation. The Effect of this Sort of Medicine is twofold, *viz.* Either to cut or to contract the Vessels. Thirdly, Whatsoever removes the Causes which distend the Vessels in length, contracts them also; which is caus'd by an Evacuation of all the Vessels. This we see manifest in every Medicine, whereby we draw out of the Body the morbidick Liquid by Salivation, Sweating, or by other Means; since a Liquid is the Cause of Distension, its absence must necessarily be the Cause of Contraction and Consolidation, and these tho' commonly over-look'd, are very just Causes of Contraction.

SOLIDITY depends upon the reducing a large Surface into a less; therefore *ceteris paribus*, every Contraction of a Fibre, which is made by itself, will augment the moving Force of that Fibre; for the Strength of the Body depends upon its Solidity; so that the Fibres when contracted (supposing the Channel to be whole and intire) will augment a Force upon the Liquid, which is likewise contracted; therefore as long as this Contraction lasts, and the Fibres are not destroy'd, the Strength of the whole Body must necessarily be augmented. In the first Place, This Contraction happens when those Parts that are most minute by Nature, are forc'd very near to one another. Whether such a Contraction may ever happen, I much doubt; but *Baglivius* places several Diseases in the ultimate Solids, by Reason of their not operating upon the Liquids; which has never yet been demonstrated. And Medicines which are either fluid or aperitive, whether internally or externally apply'd, rather dilate than contract those ultimate solid Parts. Secondly, There is a Contraction, when not only one Fibre, but several, or at least two, are conceiv'd to make

up one Body. Now since our Body consists of infinite little Fibres, if we suppose the minute solid Parts to be extended, or extruded, there must necessarily arise a violent Contraction of the whole; which Contraction may be term'd Medical. Besides, all Medicines which operate upon the Solids, operate likewise upon the Fluids; so that any Medicines should act upon the ultimate solid Parts, and not also upon the Liquids, is a trifling Conceit in *Baglivius*. Here it may be observ'd, That Men whose Fibres are closely compacted and knit together, are very strong.

CHAP. V.

Of Relaxing Medicines,

THIS Matter is very hard to be explain'd, because we apply Words to Things which have never been seen. Now Relaxation is a Change in the Solids, whereby they become capable of greater Extension, without an intire Separation of the coherent Parts from their mutual Contacts: Hence it is manifest, that Flexibility and Dilatibility are included in this Alteration; for if there is a real Dilatation, it necessarily follows, that the Sides of any Vessel must be remov'd from each other mutually. Now every Flexure towards an Arch, lengthens the upper Parts, and shortens the lower: This Lengthening may be consider'd in the minutest Fibre, contain'd in the minutest Vessel. We are ignorant how this happens in the minute ultimate Fibres, because we can discover no Body which may operate in the ultimate *Stamina*; for Relaxation is caus'd only when the same Surface is render'd more lubricous. Now I ask, What Cause is capable of being

being let into those minute Parts? For the very ultimate Channels of our Bodies must be replete with Liquids, otherwise it were impossible they should be bended without bursting. When any hard impacted Matter is expell'd from a Vessel, the Channel (before rigid) is again render'd flexible; which is Relaxation, properly so call'd. The same is to be understood of the Tunicks of the Vessels. Now every Relaxation is made between the Passages already form'd in the Body; so that the Force of all Relaxing Medicines, is upon the *Meatuses*, or Cavities of the Body, and not upon the minute Solids; and so consequently, they operate upon the Liquids; therefore Relaxers, are such as by their Gravity insinuate themselves between the Passages into the Fluids, and there dissolve any hard impacted Matter, and sustain the Fluids, whence the Vessel becomes flexible. The following Medicines are relaxing: First, Warm Water, which is capable of relaxing and softning the hardest Bodies, rendring them flexible. A Skin or Hyde, when so hard that you cannot bend it without breaking, if you soak it in Water, easily becomes flexible. The best Method in any Rigidity of the Body, is to make use of Bathings internal and external, viz. of Fomentations, Glisters, and Potions. Secondly, All mild and tepid Oyls, as those drawn from Linseed, Sweet-Almonds, and some Sort of Nutts, which correct Acidity. Thirdly, The Marrow and Fat of Animals; but chiefly the Marrow, according to Modern Observations, *Havers* tells us, That Marrow renders the Joynts flexible, and that the Fat of the Caul just squeez'd out, is next in Vertue; so that in Wounds, where there is the greatest Degree of Frigidity, or Hardness, this Fat will make the Bile passable. Fourthly, A mealy, oily, and glutinous Decoction, given in the Form of a Gly-

ster, Potion, or Draught, &c. For Meal contains between its earthy Parts, an oily Substance. Hither may be referr'd all emollient Herbs. Fifthly, Things Soapy; among which, the chief is the Bile, which wonderfully relax all Parts internal and external; as likewise do all Soaps consisting of Salt and Oyl; chiefly that of *Venice*.

BUT why should Water, (it may be objected) which first relaxes, after render Bodies, *viz.* (Hides, Skins, &c.) more hard than they were before? The Reason is plain, Because when any Body insinuates itself into another, tho' at first it makes it fluid and flexible; yet after, when the Motion of its Particles ceases, between the Parts of the Hide, it unites itself with, and becomes Part of that other Body, and so renders it more compact. The Effects of Relaxors, are first to render the Vessels dilatable; and secondly to promote the transflux of the Liquids.

C H A P. VI.

Of Constipating Medicines,

ARE such whose Particles do so block up the Emissaries of the Vessels, as to intercept the Flux of the vital Liquid; therefore every obstructing Medicine operates either by entring into the Cavity of a Vessel, or by pressing harder upon a Vessel extrinsically, than the internal Liquids press outward. As to internal Liquids they ought to arise from within, for they cannot be had from without; if we consider by what Means Medicines mix themselves with the Blood: For one Ounce of such a Medicine, as the Juice of *Tormentil*, when taken into the Tract of the Intestines applies itself to the lacteal Vessels, afterwards it dries

dries up a large Quantity of Saliva, Bile and Pancreatick Juice in the Throat, Stomach and Intestines, from whence it divides itself into infinite Parts, the thinner and finer of which are absolv'd by the lacteal Vessels, and the thicker are evacuated by the *Alvus*, in the Mesentery are mix'd with the *Lympha*, and in the *Ductus Thoracicus*, or *Thorax* Passage, and in the *Vena Subclavia* are infus'd in the Blood; so that in all these Places the Parts are remov'd from their Contacts. Now all over our Bodies there is an attenuating Virtue, even in the minutest Vessels of the Blood, and whatever is mix'd there, will be mov'd to the Parts adjacent, which is a very great help to Attenuation. Such Medicines as I have given can scarce operate upon any other Part, except the Lungs: That which is able to pass thro' those Parts where all the Blood passes will scarce affect the rest of the Body by Constipation. Thus after hearty Feeding, we are sensible of a *Dyspnea*, or Difficulty of Breathing, because the Vessels are always wider, and the Confinia or Ends of the Vessels of the Lungs are less than any other Part of the Body, which has been demonstrated before; therefore whatsoever forces the Liquids to cease from Motion, and whatever aswages the Force of the Heart and Arteries, in transmitting their Liquids, may properly and with good Reason be term'd stopping and constipating Medicines. A Continuation of this Chapter of Ointments and Emplasticks. Medicines proper for Unguents, are all Oyls, whether apply'd to the Body externally or internally; for Oyls will not mix with Water, but will obstruct its Passage thro' the Chancel; and since the Liquids of our Bodies are aqueous, we may know what will happen to our Bodies, from oily Medicines; for Silk-Worms, if their Bronchia are besmear'd with Oyl, they presently become convulsive and die; Thus if the Oyl adhere close to the

the minuteſt Veſſels of our Bodies, it obſtructs them, they being leſs than the Bronchia of Silk-Worms. Conſult *Malpighius*.

HITHER are to be referr'd, firſt Oyles expreſs'd from all Plants. Secondly all Plants decocted to a Jelly, which if expreſs'd would have yielded an Oyl; all Farinaceous Things, which by long Decoction yeild a Mucous Subſtance, and if diſtill'd afford an Oyl, as Almonds, Mallows, Pariſian Cherries, &c. the four greater, and leſſer cold Seeds. Thirdly, All oily Infuſions, as when Plants have been decocted into an Oyl, and are again expreſs'd, they yeild a different Oyl, compos'd of Oyl in the diſſolv'd Particles of the Plants: This is plain from Henbane. Fourthly, Stillatitious Oyls from all Plants. Fifthly, Natural Balloms of *Peru*, of *Copaivi* and *Mecha*, &c.

EMPLASTICKS are ſuch as by external Application, ſtop up and cloſe, as it were Glue, certain *Meatuses* or Paſſages in our Bodies: Theſe all conſiſt of Water, a Mucus and Oyl, they operate not only upon one Veſſel of the Body, but upon the whole Surface alſo to which they are apply'd. The Effect is Twofold, firſt, they hinder ſeveral Veſſels from the Exhalations; ſecondly, they force back whatſoever exhales out of the Body, and determine its Operation upon the Body; which makes them very beneficial in Maturations, where the Liquid and Solid muſt be reduc'd into one uniform Maſs. Theſe Emplaſtick Medicines may be brought under five Heads. The firſt conſiſts of all Meals which are compos'd and made up of Fern and oily Particles; the ſecond, of all gummy and vegetable Bodies; the third of all Roſins, which when mix'd with any acrid Body ſtimulate; the fourth conſiſts of all Jellies, decocted from the Parts of Animals, but chiefly from the Solid Parts, as the Bones, not only of Beaſts

Beasts but also of Fish; as the Fish *Geliocala*, and almost all Fish, lest their Fins should be injur'd by the Salt Water, have little Glandules, which distribute an oily Liquid to their Scales, as may be seen in a Microscope by pressing them; this is the Reason that the Skin of Fishes has so sapid a Taste: if the Skin of Fishes be boil'd, it yeilds an excellent Glue. The fifth consists of Compounds from these four former Heads.

Now the Effects of these Anointed and Emplastick Medicines is, to hinder the Passage of the Liquids, and induce a Stagnation upon the Part to which they are apply'd. The Liquids when stagnating, put on the same Nature as Solids, which is the Reason that Emplasticks operate not upon dead Bodies by their only outward Balsoms. Their second Effect is to determine whatever may be brought about by the surviving Course of Life, and an Obstruction of the Vessel, as in Tumors, which depend upon a Stagnation of the Liquids, and an Influx of Spirits *à tergo*, or behind. Now if a Swelling happen in the minute Arteries, there arises an Inflammation about the Lymphatick Vessels, and there are Imposthumes in the minute Vessels. Where the Matter or Substance is as fine and subtile as the Air, there arises a flatulent Tumor; if the Inflammation remains long, and the Force of Nature be strong, there is caused an Abscessus. Secondly, the natural Force makes great Resistance; Emplasticks will cause a Gangrene: If several Vessels together are intercepted after this Gangrene, that is called a *Sphacelus*, and if the Matter which slowly stagnates exhales the thinner, finer Parts, it is called *Schirrus*; if a violent Force is added to this *Schirrus*, there happens a new Inflammation and a Cancer; if the Vessels of the *Cutis* are block'd up, there arise *Pustulae*, or little Pimples. N. B. Constipating and anointing, and Emplastick Medicines are all reducible to one and the same Head.

C H A P. VII.

Of Chirurgical Medicines.

CICATRIZING Medicines are such as remove those Obstructions which hinder Secretion in the soft and tender Parts of the Body; Medicines which generate, or harden a callous or hard Skin, remove those Impediments which hinder the Liquids from flowing to the Bones: So that all those Medicines remove Obstructions in the Flux of the Liquids, and are such as in the first Place, cause a bland and glutinous Liquid to pass freely into the minutest Vessels. Secondly, these Vessels operate upon the Solids of the Body, by making its minutest Channels flexible, so as to be render'd capable of being extended by the Liquids, which Extension is threefold; First when any of the minute Vessels after being burst, unite again with each other, by *Anastomosis*, as is observ'd by Microscopes, and this may be term'd the first Texture or joining of the Flesh. Secondly, when these Vessels interwoven within each other, are so streightened, that nothing can flow out of them, except by Sweat and Perspiration through proper Passages; indeed such a Cure is very excellent, but very rarely happens, because the ultimate Vessels are generally too much condensed. Thirdly, this Extension causes the Vessels to become perfectly dry, when they resist the Exhalation of their liquid Particles, the liquid and the coercive Vessel unite in one solid Mass, which causes a Difficulty of Motion in the Liquids about those Parts, and Perspiration is obstructed. Hence in Changes of the Body by the Pressure of the *Atmosphere* upon the Liquids, a greater Force exerts itself upon these Parts, and the Damages

Damages are first felt there. These cicatrizing Medicines are twofold, either internal or external; the internal are such as in the first Place generate a thin, fine and gentle Chile, or very little Acidity, in which Salts and acrid Oyls do not predominate; such are all Decoctions of Flesh call'd Farinacious Decoctions of Barly, Oats, &c. Emulsions of oily and farinacious Seeds which do not soment. The Diet of wounded Persons ought to be of this Nature, because by this means, Scarrs, and Hardness (of Wounds) are remov'd. Secondly, Medicines which remove predominating Acids, which consist of Oyl, Saline or Terrene Particles. The Way to correct these Acids, is to dilute them with aqueous Medicines, or to conquer them by oily, or to obstruct them by glutinous, or mucilaginous Medicines, or to absorb them into alcalinous ones; for when an Acid and an Alcaly meet, the Acid looses its Acrimony. Its difficult to find out Remedies particular against an oily, acrid Body; yet its Force may be enervated, by drinking Water mix'd with Niter and Farinacious Things. Terrene Acids, as Glass, and the Spicula of Metals are hard to be remov'd out of the Body, especially if they stick close in the Lungs. For Catharticks and Flebotomy signify little or nothing; all that we can do, is to dilute them with a large Quantity of Water, and relax the Vessels with Oyl, that the acrid Particles may be expell'd by those Means: If the acrid Body be different from what I have mention'd, you must examine of what Nature it is, and contend with it accordingly; but when you understand not the particular Nature of acrid Bodies, you must have recourse to general Medicines. Thirdly, Such as attenuate Particles too thick, which are very often requisite. Now the greatest attenuating Medicine, is Water drank warm,

warm; you may (if you will) mix Salts with it, which will cause it to operate more forcibly, and to dilute in an extraordinary manner. By this the Chyle is meliorated or better'd, and render'd more dilute and ripe, the Liquids of our Bodies are all made blendable; Water itself is sufficient to these Purposes. Fourthly, Such Things give an equal Motion to the Liquids. This Matter depends on two Things: First upon diluting Medicines, whereby the Blood becomes equally diluted. Secondly, It is requisite, that the Vessels should be equally constituted, which is caus'd by an equal and regular Heat and Moisture in the Parts; all this may be perform'd by Fire and Water; but that they may work their desir'd Effect, they must be apply'd externally. Therefore these external Medicines, are such as cause an *Equilibrium* in the Body, between the Resistance of the Body, and Action of the Liquids, which are, first, such Things as relax the Vessel, particularly warm Water, so that the Part affected may be always wet. By bathing a Wound after this manner, we may best avoid a Scar: If Wine, or Balsams be apply'd, we are not so sure. Other Relaxers are likewise to be consulted. Secondly such Things as hinder Corruption, or abate the Liquids; as Water mix'd with Wine, or rather the Alcohol of Wine, Urine drank three or four times a Day, Spirits of Wine, and all other fermented Spirits, all Balsamicks, as Turpentine, *Copay de Peru*, are equally sufficient to obstruct the Corruption in the Liquids; as likewise will all Salts, if they are not alcalinous, as Vitriol, Nitre, Sea-salt, and Salt of Cinamon; all Tinctures from Spirits of Wine and Balsamicks, and all Oynments, all artificial Balsams and Emplasticks. Thirdly, Hitherto belong Medicines which dry, or which induce a Siccity on the very Fibres, which are
reduc'd

reduc'd into a Powder: These Things are requisite when spongy Flesh arises up about a Wound, such as are made of the Bones of Fishes, calcin'd by a gentle Fire, and powder'd; but you ought to take care not to be too lavish in the Use of them. Thus the Jaw-bone of a Pike will absorbe any moist Humour, and contract the Parts; but if you apply much, it will cause a dismal Scar. Hitherto may be reduc'd the Stones of Fishes, Pearls, Crabs, and all Rozins, which are excellent, and perfectly divine, when dry'd, and render'd into Powder; which proceed not from their corroding Qualities, as is commonly thought; but because in running Ulcers they absorbe the moist Particles from the carthy. Thus Bolusses made of Chalk, will absorbe the Humidity, and blunt the acrid Particles. Of the same Nature is Allum when calcin'd to Powder, and the *Lapis-Hæmatites* (or Blood-Stone) pounded and well-prepar'd, and *Crocus Martis*, and *Calx Saturni*. Fourthly, Such Things as strengthen the Vessels, by contracting them, as Spirits of Wine, and Oyl of Turpentine, the celebrated Oyl of Vegetables, when apply'd to any Part, will immediately dry it, and cause a Scar and Hardness. Hence may be compos'd infinite Sorts of Medicines, that are term'd Sarcotick Medicines, which remove the Obstruction, whereby the nutritious Humours of the Body were impeded, or stop'd. Those Medicines are said to generate a Callus, which take away those Impediments which hinder the Juices from coagulating in hard Bodies; as Bones, and the like.

SUCH Medicines are good to soment Scars, which remove the Impediment whereby the Concretion, or Exsiccation of the Vessels was obstructed. There are three Things required to make these Medicines compleat. First it is necessary that their Liquids

quids should be gentle ; secondly, that it should easily pass thro' the Part ; thirdly, that it should be of a glutinous Substance, because its Operation is in Vessels which differ but little from a perfect Fluid ; and likewise they ought to be void of all acrimonious Particles, that they may be able to penetrate into such Vessels, and there become fluid ; however they ought not to be so thin and fine as easily to disperse themselves, but must adhere close to the Vessels : These are the Properties which a Medicine ought to have that is us'd in fomenting Scarrs.

Now it is required in the Vessels ; first, that the Liquid may be able to enter into them ; secondly that those minute Channels should be flexible, and capable of Dilatation from the Liquid contain'd within them. These Things being premis'd, the Consequence will follow ; first, That the Ends of these two Channels should meet each other with open Points, and mutual *Anastomaties* are caused ; secondly, that the End of such a flexible Channel, should be extended till it has a very minute Orifice, and only subject to an insensible Perspiration ; but upon a hard presure of the Channel, it will emit Sweat ; and this is the best way of curing a Wound without making a Scar ; but it is seldom done, because a Wound may be sooner heal'd, after the vulgar Method ; thirdly the Vessels will become acid (or dry) when they make so great Resistance, that their Liquids cannot exhale ; hence will arise a Scar, or Stagnation of the nutritious Juice in the ultimate Vessels, consequently a Conglutination and Concretion ; for every Liquid which stagnates in the Vessel wherein it is contain'd, grows to and becomes Part of that Vessel, which is a Reason that a Scar exceeds the other Parts of the Body in Solidity, Hardness, Insensibility, Whiteness, and hath a lesser Degree of Perspiration.

CHAP. VIII.

Of solvent Medicines, or such as cause Pain.

THE Perception of such an unpleasant Idea, which accompanies the Distention of any Nerve, is call'd Pain; which if it remaineth long, or increases, brings on a Dissolution upon the Fibres. Two Things here ought to be observ'd: First, There can be no Tension in the whole Body, or Elongation of the nervous Parts, but Pain must ensue, altho' there be no Destruction, or Corruption in the Solids, or in the Liquids: This may be effected by Bruising, Cutting or Stretching the Parts, as in the Case of Hanging. Therefore Medicines which create Pain, are such as are capable of producing a Rupture in the adjacent Parts, after the above-mention'd Elongation. Secondly, If a Nerve in its Passage to a living Part of the Body, be bound, compress'd, or destroy'd, Persons whose Bodies are thus affected, do lose all Sense of Pain; therefore all Pain in respect of a corporeal Cause, is fix'd, the Nerves being injur'd, and consists in their being rent and torn asunder.

FROM hence it follows, That there are various Degrees of Pain arising from these Distractions in the Nerves. The first Degree is, when a Nerve is so much torn, is only so far mov'd, that the Mind perceives the Force of its Fibres cohering together, the external Force compressing upon them; this causes a grateful Motion in the Mind, a Sense of Titillation and Tickling in the Body. The second and last Degree of Pain, arising from Distraction in the Nerves, is, when the Mind perceives the Strength of its Fibres to be less than the dissolving Cause; thus the Pain is greater or less, according

to the greater or less Distraction or Dissolution of the Fibres; but if a Fibre happen to be so rent, and ready to burst, there will arise a great Sadness in the Mind, from a Consciousness of its immediate Separation, which causes Pain; but when the Fibre is quite dissolv'd, the Pain ceases.

THEREFORE in the first Place, such Medicines are to be consider'd as produce an Itching and Titillation, and such as rend asunder the Parts; 2dly, such as remove the *Æquilibrium*; and lastly, such as divide and separate them. These Medicines cause Pain, either before or after the bursting asunder of certain Fibres; for when some certain Fibres are burst, the rest undergo a greater Distraction. This may be a Reason why Pain remains after Medicines are expell'd out of the Body. Therefore whatever in the first Place internally extends; or secondly, internally compresses; or thirdly, lengthens the Fibres, or dissolves their Continuity, causes Pain; for whatever extends internally, augments a Cavity, whence arises Distraction and Pain. An inward Compression causes the Fibres to be bended, and when the Bending is greater than the *Rectum*, or Streightness in the Fibre, then follows Distraction and Pain. The Reason of this Matter is manifest, because all Twistings, and Incurvations, stretch and lengthen the Parts, which cause Pain. Medicines which cause a Dissolution in the Parts, have the same Effect, whether they be corroding or drying, &c. and the Reason is the same. We are perfectly ignorant why these Sensations of the Mind follow such Motions of the Body; nor indeed is it requisite in *Physick*. It is sufficient, if a Person knows, that the Condition of a Body is such, and understands proper Medicines, which may be capable of altering it. The Ancients accounted the Degrees of this Sort of Medicines, to be

be Six ; tho' they may be reduc'd to Two or Three Heads. To the first Class of these Medicines, the Ancients gave the Name of *Phenigmi*, or Rubifying, because they observ'd, that Pain would produce a Redness in the Parts ; therefore whatever causes an Inflammation, may be reckon'd under this Head ; as Titillations, which are accompany'd with Pain, afterward little Pimples issue out, and cause a Titillation ; which by Rubbing ake, and emit a *Serum* ; so that this Tickling and Itching, may be said to be a kind of Inflammation. Thus it may be observ'd in all Animals, that the genital Member, when ready for Action, and is on the main Stretch, is slightly inflamed, looks red and fiery by reason of the Veins being compress'd ; but if it be rudely (or roughly) handled, it aketh as if it was cramp'd, and often suffers a Gangrene ; for in no Part of the Body is the Titillation more sensible than in that ; the same happens in our very Sight, Taste, Smelling and Hearing. Now all Medicines of this Sort cause a slight Inflammation in the Body, and is very pleasant in the ultimate Arteries. Whatsoever obstructs the Passage of the Blood, will cause a Tickling ; which may be effected, first, by Frictions, which are relaxing, by reciprocal Compression of the Vessels ; by which Means more Blood is drawn into those Parts, which causes a grateful Sensation ; but if it last long, it is hurtful. Secondly, By an Application of Fomentations, which consist of relaxing and emollient Medicines, and hot Stimulators, used either externally or internally ; of which Nature are Water, Oyl, fermented Spirits, Salts, &c. as before observ'd. The fluid and hot Particles in these Fomentations, both rend and open the Parts, by reason of their aqueous Particles, and by their Heat cause the Blood to be gather'd to those Parts in greater Abundance, which makes them swell ;

and if they be fomented too long, there will arise Pain, and at last a Gangrene. Bathings are a Species of Fomentations. Thirdly, Emplasticks which consist of but a little Acidity, block up and hinder the Perspiration of the Vessels; some heterogeneous Matter is accumulated, and the Part will fume and look redder than the rest of the Body, if Acids do not correct them. Fourthly, By Cataplasms, which must be soak'd in Water, and brought to a glutinous Substance, and then they will foment the Parts, and in respect of their gluy Nature, become to be of equal Virtue with Emplasticks. The Effects of these Medicines depend upon the Matter of which they are compos'd; which is either mollifying, relaxing, fomenting, or adhering. Fifthly, By Suctions, either by the Mouth, or Cupping-Glasses, or by Leeches, which remove an Acid from any Part affected, and causes it not to press so much there as upon other Places; so that the Blood not meeting with so great Resistance in these Vessels as in other Parts, rushes in greater Quantities, which causes a Tickling, and the Part affected will reddens, ache, and often gangrene; which sometimes happens from often using Cupping-Glasses too hot. Sixthly, By a violent Heat, the Effect of Fire, which is an Agitation of minute Bodies that are compress'd to any other Body, and exert their own Motion; the Operation of Heat is by Attrition, therefore when a violent Degree of it is apply'd to our Bodies, it will produce Redness, Pain, Inflammation, &c.

THESE Rubifying Medicines cause Obstruction at the Ends of the Arteries, and by their Effects remove any Pressure; of this Nature are Leaches, Cupping-Glasses, &c. whose Effects cause a Titillation. Now these Tickling Medicines are such as put the Liquids into Motion; and all Things which
remove

remove the *Equilibrium* of one Fibre with another, cause a Redness, as Bruises; because by those Means a greater Quantity of Blood is drawn to the Part affected, which is extended, and likewise akes. All stimulating, acrid Medicines, which, without Damage to the outward Parts, enter in at the Pores of the Body, and force themselves upon the resisting Fibres, and there fixing themselves, produce a greater Degree of Motion; at first they cause only a Tickling, but afterwards prove hurtful to the small Vessels. Medicines of this Nature, consist only of Vegetables, aromatick Plants, and their Juices, which have in them a saline, acrid Matter, and are indu'd with a very thin, weak Oyl, as Rue, Mustard, Radish, Scurvy-grass Cresses, Root of *Thapsia*, the Leaves of *Ferula*, Aloes; all these apply'd externally, excite Heat, and their Salts if observ'd with a Microscope, will appear double pointed, which is the Reason that they cause violent Motions, Tremors and Pains: Thus *Thapsia* in Paralytical Persons, and such as are subject to the Distemper of the Nerves, cause a Resolution of the Parts. Hither likewise belong the Salts, and Oyls of Animals; as Salt and volatile Oyl of Ants, which if apply'd in any Quantity to a Part, corrode and fret it after the same manner, as do also the Flesh, Skin, and *Viscera* of Animals, altho' they must be apply'd so long till they begin to putrify, by which Means their alkaline Salts are dissolv'd. Thus we see living Pigeons, Dogs, &c. will produce this Effect upon Bodies, but not before they putrify; but if they be apply'd too long, they become Septicks or putrifying Medicines. Hither likewise may be referr'd all Medicines in which there is an alcalinous or acrid Salt, as also *Venetian-Soap*, and all Oyls not too acrid, which are excellent Medicines to cause Attrition in the Vessels, and to stay long in the lateral Vessels.

The Ancients confided very much to these Medicines in dropfical Distempers, and flatulent Pains; for by their Means two Things are effected in Bodies; first, a violent Attrition in the Blood; and secondly, a Derivation of a greater Quantity of Liquids thro' the lateral Vessels.

HENCE it follows, That these Medicines have no Operations on dead Bodies, because their Operations depend on the Motion of the Blood. Emplasticks are a second Kind of Medicines which cause Pains; and when apply'd to any Part of the Body, attract Liquids from other Parts, to that Part where they are put.

RUBIFYING Medicines attract, but Epispasticks put extravasated Liquids into Motion. Now Epispastick Medicines, are such as are endu'd with so much Acrimony as penetrate thro' the Pores of the outward Skin, without destroying it, and insinuate themselves within the Fibres of the minute Channels, viz. by those Vessels describ'd by *Sanctorius*. They are either Sudorifick, Attractive, or Expulsive, and have all the same Effects. Now there must be a great Degree of Penetrability, and Acrimony, predominant in these Medicines, to make them capable of passing thro' the scarce Skin, and the fixing themselves in the Channels that lie under it, and of causing a little Wound there to the *Epidermis*, without hurting it. These acrid Medicines operate not visibly, but like as a Knife is forc'd into the Body of any Animal. The Effect of these Medicines depends on the vital Liquids; now the more solid the outward Skin is, the less of vital Liquids it contains, and then the extream Parts cannot be affected by them, tho' they will affect the Part which lies underneath.

MEDICINES of this Kind, are first *Phænigmi*, or Rubifiers, if long apply'd, *Resectors* or *Epispasticks*:

Thus

Thus if Horse-radish be apply'd for two Hours, 'twill cause an Ulceration in any Part; Mustard-seed pounded in its own Juice, if long apply'd, will effect the same, and cause Blisters; a Cupping if too long us'd will raise little Pustles. Hence it is plain, That these rubifying Medicines differ only from *Epispastick*, by the shortness of their Continuance. Secondly, Things indu'd with an acrid penetrating volatile Salt and Oil, as *Ranunculus Bulbosus*, which is called, the Devil's Crow-foot, the Roots of *Thapsia*, Sow-bread, Onions, Garlick, the strong purging Juice of *Euphorbium*, Spurge or Stramony will all exulcerate the Skin: Black-soap is likewise very effectual to the same Purpose; and hither too may be referr'd Pigeons dung, especially that of tame ones, as also *Cantharides*, and some Sort of Poisons. Thus the Sting of a Bee will slightly Blister, but Fire is the most violent of all these Things, and will operate upon dead Bodies: all saline Acrids, all distill'd and oily Acrids, all saponatious Things, and putrified Flesh will operate effectually, if we want to stimulate Motion when it flags or sinks, these are Poisons. Hence it follows, That these Medicines operate as instrumental Causes, it is evident from hence, because parts they have no Effect upon dead Bodies, and which are hard and callous.

THE third Class consists of Escaroticks, which are so called from *Escara* which signifies a Crust, which is made on a Wound by the help of Fire, by which Means the outward Skin is consum'd; this makes a Difference between Escaroticks and Epispasticks, the one leaving the Skin unhurt, whereas the other destroy it, and penetrate deeper than into the Parts, which lie immediately under the Skin. All Epispastick Medicines when apply'd so long, till they penetrate into the Flesh under-

neath the Skin, and raise a Crust, become Escarotick; Fire likewise, or Water if too hot, will make a Crust, as also will volatile and acrid Salts, if apply'd very long: the Bodies of Vegetables, Animals and Fossiles that are indu'd with such an acrid penetrating Faculty, as to be capable to enter thro' the Skin, and by fixing themselves in the Parts underneath, dry and destroy them, and produce a Crust; the Liquid Particles being exhaled. To this Head belong Medicines made of Vitriol, Arsenick, *Aqua fortis*, *Aqua Regia*, *Euphorbium*, Pepperwort if pounded, and apply'd hot.

THE fourth Class consists of Causticks, from *Xaio*, which signifies to burn. Those Medicines are so called, which by their Application to any living Body, not only corrode it as the former Medicines do, but also penetrate to the very inward Parts, and destroy the minute Vessels, and cause an Efflux of the Liquids, the resilient Fibre closes itself, and the whole Part is dry'd up; now whilst the Parts are thus drawn back, the *Conatus* cannot be equally sustain'd, whence arises Pain. Such Medicines are, first, acid fossil Spirits; secondly, crude fossil Spirits drawn from metallick Bodies, as from Gold, Quick-silver, Brass, from these are made the *Lapis infernalis*, *Mercury sublimate*, Oyl of Vitriol, &c. thirdly, fossil Salts, render'd volatile by Fire, as Sea-Salt, *Sal Gem*, Salt of Nitre, Worms, and Vitriol, forc'd by a strong Fire lose their Saline Nature, and become volatile, and are indu'd with a violent Degree of Acidity, as Fume of Sulphur, Spirits of Vitriol, Spirits of common Salt. Their Effect upon living Bodies, is first to produce a yellow Spot; secondly, to Cause Pain, to inflame, to induce a Gangrene with a black Crust, which reaches even to the Bones. Fourthly, Crude fossile Spirits fix'd and combin'd within Semimetallick

mimetallick Bodies, as *Cobaltum*, Antimony. Those Things which give a Fixation to Acids, prove the greatest Causticks, as Butter of Antimony. Fifthly, Alcalinous Spirits from all Parts of Animals, except from Milk, and chile Spirits from Urine, Blood and Bones, are very violent Causticks, and therefore are to be us'd with great Care and Deliberation. Sixthly, Alcalinous, volatile Salts depurated, as volatile Salt of Harts-horn, sublimated, becomes very acrid, corrodes all Parts it touches, and is very strong Poison; seventhly, alcalinous fix'd Salts from certain Plants burn'd at the Fire. Famous Surgeons make use of these as Causticks. Salt of Nitre, either burnt or with *Tartar*, with fresh Coals may be referr'd hither. Eighthly, Whether Sulphur proceeding from a Bastard Arsenick, may be called a Caustick or no, I very much doubt; it is certainly the worst of Poisons, because we know nothing of a contrary Nature to it, whereby it may be asswaged, it is of a Nature of Salt, and Sulphur. ninthly, the Juices of some Vegetables, as of *Helibore*, *Ranunculus*, if apply'd in large Quantities, and with great Force and Heat prove Causticks. Tenthly, Actual Fire, is the greatest of Causticks, and if apply'd but one Moment destroys, and hath no Moderation even when it is in Bodies which are proportion'd even to its Gravity: For its greatest Effect is upon Gold, then on Quick-silver, &c. These Fossiles cannot be heated beyond their Degree of their Fusion, which is verified in Water, which reaches not to the Degree of Ebullition. The Effect of Caustick Medicines is, to destroy the Vessels, to extravasate the Liquids, and to cause exquisite Pain. The fifth Place contains Septick Medicines, from *Sepo*, to putrify, which denotes such a Putrefaction, which a Piece of Flesh receives when expos'd to Humidity and Heat, viz.
it

it stinks and distills a nauseous strange kind of Liquid. Thus there are some Medicines which have the same Operation upon our Body, so that Septicks are such as turn, and resolve the Solid and Liquids into one putrid Mass; therefore all Causticks, if they be at the same Time liquid, are also Septicks: Thus crystal of Silver mix'd with an emollient Cataplasme, so that Causticks and Septicks differ only in Humidity, which is proper to the latter.

Corol. I. ALL Medicines exciting Pain, from the first Degree of Rubifiers, to the last of Septicks, differ not in Nature, but only in Degree. Secondly, Those Degrees are to be estimated, not only from the Nature of the Body which is apply'd, but from the Force with which they are apply'd, for they all operate but little of themselves. Thirdly, Heat is the chief exciting Cause in these Medicines, and according to the Degree of Heat, their Effects differ, in stimulating, contracting, or corroding. Fourthly, By the Heat and Moisture of our Bodies, they are brought into Action; this is the Reason of their not operating upon dead Bodies; the determining Cause is the Pressure of the Atmosphere, which being remov'd, they operate scarce at all. Fifthly, All these Medicines begin from the slightest Inflammation, and end at last in a *Spbacelus*. Thus much for Medicines, which operate only upon Solids.

C H A P. IX.

Of Attenuating Medicines.

A Liquid may be changed either in Respect of its particular Particles, or in Respect of its whole

whole Mass together. Whatever Alteration is wrought upon the whole Mass, is done either by diminishing or increasing its Form or Figure, which is render'd more Solid or Fluid, according as the *Moles* is put in Motion more or less. Attenuators are the first Class of Medicines which operate upon the Fluids, whereby the *Moleculæ* or little Masses of which our Liquids are compos'd, are lessen'd, or divided into lesser Parts, they are different from resolving Medicines, whose Property it is to separate and reduce those coagulated *Moleculæ*, into those Masses of which they were first compos'd. All Medicines attenuating act either first by dividing the Parts which are united, which is done by intruding themselves within the Pores, which occasion Divulsion and Separation; or secondly, by external Attrition, or when different Points of the same Superficies, have Lines of different Directions into opposite Motion. This is occasion'd only by Fluids, or such Things as are of the same Nature of Fluids. Attenuators therefore are first, such evacuating Medicines, as diminish the Tendency of the Parts to Cohesion: for when the Parts accede to each other, either by a certain Power unknown to us, or by some known mechanical Power, they press with great Force, as is exemplified in two smooth Glasses, being put one upon another; so in the Liquids of our Bodies, if any external Force be stronger than the trajectory Force of the Liquids, it will press upon the Vessels, and the Liquids have a Tendency to cohere, and such a Force occasions an Arctation of the Channels, which may be best remov'd by a Diminution of the Liquids: Thus the same Liquids may be resolv'd when they incline too much towards Cohesion, which is done by Evacuators, as by Spirits of Wine, by Purges, by Salivation, Sweats and Emeticks; but we must observe,

observe, That Spirits of Wine do not always attenuate ; for if they are taken in too great Quantities, they rather coagulate than resolve ; for when the Vessels loose their Tone by too great an Evacuation, the Liquids no longer force themselves forward, but stagnate and coagulate. A second kind of Attenuators, are diluting Medicines, or such as by their soft Particles intrude, or insinuate themselves within the Apertures of the Passages ; of which Nature is first warm Water, which is as it were a *Panacea*, or an universal Remedy, in dissolving or loosening the very Liquids of our Bodies. Secondly, All alcalinous, volatile Salts, are diluting, as Spirits of Urine, Blood, Bones, &c. Thirdly, All alcalinous fix'd Salts, if they are not too acrid, or given in too large Quantities. Fourthly, All Salts of Plants gently distill'd. Fifthly, Volatile Salts of *Armoniack*, if what is cruel be not too predominant. Sixthly, All oily alcalinous volatile Salts, if not too acrid, and Alcoholick Digestion of these Salts resolves Coagulation, unless the Alcohol predominates, and then they change their Nature, and become coagulating. Seventhly, All fossile Salts, not Metallick, as *Sal Gem*, Sea-salt, and Borax, and Metallick Salts coagulate by Reason of the Acids, which are mix'd with them, but if they be dissolv'd in Alcalies, they attenuate. Eighthly, All Soaps of Plants, extracted from dry Spices. Ninthly, All artificial Soaps ; Tenthly, All Wines which are not indued with too much Crudities, and they act only upon the Solids by stimulating: This Operation is perform'd by external Attrition, either by an Increase of the intestinal Motion, or secondly, by an increase of some external Pressure. When Coagulations are loosen'd by an increase of intestinal Motion, it is done four different Ways. First, by Heat ; now dry Heat thickens, and moist Heat loosens ;

loosens: Thus dry and moist Baths, Frictions, Fomentations and Exercises, are attenuating by exciting intestinal Motions, in opposite Turnings and Windings. These things if too long continued exsiccate the Body. Secondly, By Effervescence; Effervescences are commonly describ'd, as if they happen'd by the Encounters of Salts of a different Nature; but no such Salts meet in our Bodies, as is plain from *Chymistry*; and if they could happen, they would expend our Blood so much, as to cause Death in a Moment; neither doth Effervescences arise from a Mixture of acid and oily, or acid and terrestrial Parts; in fine, Effervescency has no Effect in resolving or loosening any Parts of the Body. Thirdly, By Fermentation; now there is no Room or Matter in our Bodies for such a Degree of Fermentation; nor are the Effects of Fermentation apparent. Consult *Chymistry* of the Effects of Fermentation, and you will find, that the Attenuation of our Liquids, depends not upon Fermentation. Fourthly, By Putrefaction: Now Putrefaction arises from the Stagnation, or too violent continu'd Motion of our Liquids. It is very evident, that our Liquids may be attenuated after this manner: But the three former Ways seem to be scarce possible. You may take notice, that a great Difficulty lies in Attenuating and Dissolving; for without great Care, a quite contrary Effect will follow. External Attrition is caus'd by the containing Vessels, which are put in Motion either by the Force of the Heart, or by some external Force; if from that of the Heart, it must be frequently and vehemently excited into Motion, which depends upon Stimulation; if the Vessels are mov'd by an external Force, that Motion must depend upon a reciprocal Pressure and Relaxation; and the Vessels which act thus must operate in the Nature of Stimulators. Consult

Consult the Chapter concerning *Stimulating Medicines*. Hence it is plain, that the Operation and Attenuating Medicines is not so easy to be conceiv'd, as some Persons imagine; for we are often ignorant of the Cause, why it should be so difficult to remove and dissipate a slight Inflammation, or why the Blood which is infus'd by a Bruise, should remain so long: The Reason is, Because it is so hard to apply Remedies to the Parts affected. Let us suppose a Person to take 35 Drops of any volatile Salt, with a Design to attenuate some Particles in the Blood; what a small proportion is that to 25 or 30 Pound of Blood; how will they lose their Virtue, if they arrive at the Part affected; and when they come there, how weak will their Operation be? And since we can scarce by any Medicine dissolve coagulated Blood, how then can we resolve it when in the Body? Therefore I take it to be the Part of a prudent Physician, rather to foresee and prevent Coagulations; it being much easier to prevent them, than remove them when present; for then scarce any Art can cure them.

CHAP. X.

Of Incrassating Medicines.

INCRASSATING or Thickening Medicines, proceed from Coagulators which drive those Solids of which our Liquids consist, into immediate Contacts, as *Britannicus* hath observ'd. Several Bodies have Passages, which may be term'd *Vacua*, or Vacancies; and other Parts which are impenetrable. Now the Fluids of our Bodies are to be consider'd in their ultimate Solids, which are so small as to escape our Sight; for in their whole Mass they may be

be chang'd in their ultimate Solids, first by an increase of any Particle ; secondly, of Figure ; thirdly of Solidity ; or, fourthly, of Motion ; they may be alter'd in the whole Mass, either when the Connexion of the Parts, or projectile Motion is chang'd.

THE chief Remedy among *Incrassators*, or Thickeners, is Heat, whether receiv'd by the Sun, or Fire, or Rubbing. this is commonly thought a Paradox ; but I affirm, There is no Liquid in our Bodies but may become thicker, and the liquid Particles fly off by Heat ; I mean Heat, as it resolves by stimulating the Solids. The second Remedy, is a too long and violent Exertion of the muscular Motion, because it increases that Perspiration mention'd by *Sanctorius*, and expels the *Lympha*. This is likewise a Paradox ; but as far as this Motion operates upon Fluids, so far they have this Effect ; for whatever cannot be express'd or squeez'd out, is thicken'd and incrassated more ; this Operation only resolves the Fluids : Thus *Hypocondriack* Persons if they use Exercise too long without eating and drinking, become weak and faint, and their Liquids seem as 'twere dry'd up.

3dly, EVERY violent and continual circular and trajectory Motion of the Liquids from broad Vessels into narrow ones, and again from narrow into broad. By this means the Fluids are express'd ; for by this violent Velocity of the Liquids, the *Conatus* or Tendency of the Parts towards each other, is augmented.

4thly, EVERY excretory Motion, if too much increas'd, which Motion draws the Liquids out of the Body. Now the Vessels by which the Liquids are drain'd out of the Body, are the smallest and finest of all, as is confirm'd by Urine, Sweat, and Perspiration, as is describ'd by *Sanctorius* ; a violent Motion

Motion compressing these little fluid Vessels, expresses and squeezes out the Liquids.

5thly, EVERY violent Motion which compresses the Vessels. We may perceive in the Air-pump how elastick our Liquids are, if the external Resistance of the Air be remov'd; hence Heat, and the pressing of the *Atmosphere* makes us swell; and sometimes on the contrary compresses the Vessels; as they experience who go into Mines; first they grow cold, because Perspiration is obstructed in the minute Vessels; then they Sweat by reason of the Heat of the Place; but the same Force remaining in the Heart, the same Quantity of Liquids passing thro' narrow Channels ought to move quicker, and consequently excite Sweat; and upon this difference of Air, the Strength and Weakness of Men depends; and also in a great Measure, the Variety of their Dispositions and Wits.

6thly, ALL Sorts of Medicines that are able to produce the foremention'd Things requir'd, and increase Oscillatorious Motions, Excretions, Sweats, Urine, &c. produce a Thickning in the Body; which happens in Diseases where the Liquids are to be diluted. Spirits, Salts, and other Stimulators, if too long apply'd, are apt to bind up the Liquids.

Corol. 1. WHATSOEVER Medicines for a certain Time attenuate in their first Operation, afterward thicken: Thus a Medicine that was once beneficial, may become hurtful, by the Alteration of its Effect.

Corol. 2. ALL Remedies which thicken the Liquids, for a certain Time (upon Condition the Body is in Health) are proper to cause long Life: Thus Husbandmen, who have generally thicker Blood than others, are long-liv'd, stout and laborious. And on the other-hand, when the Blood is

too

too thin, all the above-mention'd Inconveniencies meet, and stop up the Vessels, by expressing the liquid Particles, which is evident from Ptifical and Consumptive Persons.

CHAP. XI.

Of Medicines exciting Acrimony.

ACRIMONY in the Blood, is endu'd with such a Shape or Figure, as by its own mechanick Force may be apply'd to any other Body by very few Surfaces. Now every Body which is bland and gentle, may become acrid: And on the other-hand, every acrid Body may be made bland, only by the change of Figure: Thus, for Instance, A Bale of Iron if press'd never so hard, will cause no Detriment to the Parts; but if divided into *Lanceolæ*, or sharp pointed Pieces, is capable of doing great Hurt. Thus Bodies may become acrid innumerable Ways: As for Instance, When Bodies are of a pyramidical or conick Shape, Prismes dissected, plane and inclin'd. The Matter in our Bodies, which is capable of being render'd acrid, is first not aqueous; for the aqueous Part of our Liquids cannot be made acrid by any Means; nor are the terrestrial Particles easy to be render'd acrid; of which there is a great Quantity in the Body. The Liquids of our Bodies that are of an acrid Nature, are Urine, and the Bile; none of the other Liquids instilling into Wounds cause any Pain, except these. The Particles of our Liquids become acrid, either by changing their obtuse Figures into acute or conic, or by setting our Liquids at liberty, when involv'd in their own Colour;

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Thus

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Thus the Salt in the Blood thro' a Microscope, appears to be of a rhomboidical Figure. *2dly*, There are in our Bodies oily Parts, which are of a mild and gentle Nature, as Fat, Marrow, &c. and this is the Reason they cause no Pain when they touch Wounds; yet they are capable of being chang'd into very acrid Bodies: Thus, for Example, Butter, if it remains long in the Stomach, often sends up such acrid Fumes, as to exulcerate the Throat. *3dly*, Salt may be alter'd by Attrition, or Bruising; after this manner *China-Root* discovers itself to be of an acrid Nature; it matters not whether by changing its Figure, or whether by extricating itself: Now this Change is wrought as often as the Velocity of the Liquids, and the Resistance of the Vessels is augmented, which causes a greater Degree of Attrition; whence Bodies are divided into several *Moleculæ*, or little Masses; and this is the Reason why the Angles are always augmented. *4thly*, Acrid may be produc'd by Attenuation, as has been said before; and also by Division, whereby the Angles of any Body are increas'd, and at last the divided Particles have very acute Angles in respect of their *Moles* or Mass. *5thly*, Resolvers produce Acrimony, and if the Globules of our Liquids be resolv'd, they become acrid Liquids: It hath been wisely ordain'd by the AUTHOR of Nature, that there should be lateral Duets to expel such acuminate Particles out of the Body, by Urine, Sweat, Perspiration, &c. *6thly*, Putrefaction excites Acrimony, from its own acrid Nature; it arises from a Stagnation of Liquids in the Body, and produces three Sorts of Acrids in the Body; the first Acrid occurs only in the Stagnation of the three sorts of Liquids of our Body, or in Food consisting of Vegetables, especially if they remain in the Stomach above eight Hours, then the Chyle suffers Attrition,

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tion, and by its Stagnation becomes acid in the Intestines; viz. if Water and Milk are generated from Vegetables, and stagnate at the Womb or Breast, they acquire an acid Acrimony; but after eating the Flesh of Animals, there is caus'd an alcalinous Acrimony. A second Sort of Acrids which arise from this Cause, are oily; for it is observ'd in every Part of the Body which stagnates, becomes *fatid*, or putrify'd; and as it happens in those Vessels which are clos'd within the digestive Faculty, if you observe from a Microscope, every operative Cause is such as moves the Part contain'd this Way, and that Way, forcing them to the Sides, and turning them upwards, and downwards; whence from such different Windings the Parts are dissolv'd, and their Shapes chang'd; this Putrefaction consists in oily Particles, mix'd with an alcalinous or volatile Salt; the oyl and Salt afford Matter for Putrefaction; but if the oily Particles be expell'd out of the Salt, the Salt will be no longer foetid, because it is no longer combustible. A third Sort are alcalinous, costick Acrids.

ANOTHER Way of producing Acrids in the Body, is, when we take them inwardly; as Medicines compos'd of Fossils, which are scarce at all chang'd in our Bodies, but always retain their own Nature, and produce a constant Acrimony in us; such are Things sulphureous, or crude, *Sal Gem*, Sea-Salt, *Borax*, &c. These mingle with our Liquids, without losing their Strength, and if they were acrid before we take them, they will remain so in the Body. Thus when an extraordinary Resolution is requisite, as in a *Chlorosis*, it may be best perform'd by *Borax*, *Nitre*, &c. Of such a Nature are also acid Acrids compounded, which are either volatile, or frigid; the volatile are less solid and ponderous than the fix'd; and the Strength of an Acid is exactly proportion'd

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to its Gravity, which is the Reason that the Oyl of Vitriol is thirty times stronger than Vinegar, the native Acids of Vegetables are crude and volatile; as the Juice of unripe Fruit, as Currans, Cherries, Apples, Pears, &c. which are also at the same time sharp and sour; fermented Acids, as from new Wine and Vinegar, are very light and opening; fix'd Salts made volatile, as Nitre, Allum, Sea-Salt, distill'd Vitriol, are very acrid.

A SECOND Class of Acrids given inwardly, consists of alcalinous, which are volatile or fix'd; the fix'd are so call'd, because they have earthy Particles adhering to them, which may be separated by Putrefaction, Combustion and *Alcohol*, and then they become volatized, that is, more moveable; if apply'd to the Body, they operate much more powerfully than the fix'd Salts; but if apply'd alone, and without proper Vehicles, they are easily dissipated; and in this respect the fix'd Salts have the Advantage, by Reason of their Ponderosity, which further all their Operations.

THE third Head consist of oily Acrids, which are either gently express'd, or distill'd; these are the most acrid of all, and are to be taken inwardly, when the Body stands in need of the highest Degree of Stimulation. These Oyls are more efficacious than Salts, because they are both moveable, and at the same time stick close to the Parts; such are, for Instance, Amber, *Guaiacum*, or *Lignum Vitæ*; but if given without Care, or alone, they inflame, or cause a Gangrene; but distill'd Oyls come from fermented Spirits.

THE fourth Class consists of Salts, and these are either from Animals, as from Urine, Blood, &c. or from Vegetables, which are either natural or artificial, or produc'd by Fermentation, and are neither alcalinous, nor very acid. Concerning this Matter, consult

consult *Chymistry*: Those native Salts are slower in their Operation, than the Armoniac Salts of Animals. Hither may be referr'd Manna, Sugar, Honey, &c. Among all acid Fossils, metallick, terrestrial Salts are most remarkable, such as Sulphur, Allum, and Salt properly so call'd, as Sea-Salt, *Sal Gem*, *Nitre*, *Borax* and Saltpetre, which is commonly (but falsely) call'd a metallick Oyl.

THE fifth Head consists of acrid, aromatick Bodies which have a fragrant Smell; as Peper, Wake-Robin, Ginger, Onions, Garlick, Cinnamon, Cassia, Winters-Bark, Cloves, Galangal, Zedoary, Cardamon, and *European Spices*, which make up fifty Simples; all which are of an excellent Flavour, and cause Spitting and Heat, they are endu'd with Salt and Oyl, and are of an acrid Nature; if they are used in too large Quantities, they will exulcerate the Mouth, Ventricle, Testicles, &c. A sixth Class consists of such Acrids as cause Pain. Of which I have spoken already in Chapter VIII.

C H A P. XII.

Of Demulcent Medicines.

A DEMULCENT Medicine is such as is capable of changing the Figures either of Medicines, or of the vitiated Humours of the Body, or of acrid Poysons, &c. by obvoling them in its own Body, or by the Apposition of some other Body; so as to make them be of an obtuse, inactive Figure. Medicines of this Kind are, 1st, General, which are able to blunt all Sorts of Acrids. 2^{dly}, Specificks; whereof some increase, and others diminish Acrids. Now upon Supposition, that all

Acrimony, in relation to our Bodies, depends upon its rushing with very few Points, it will follow, that a Demulcent is that which is able to change acute Figures into obtuse, by covering them, and involving them in a different Body.

DEMULCENT Medicines comprehend whatever performs this Effect in general, or in particular; If you suppose a Person to have a Case fill'd with several Wedges of Iron, you may keep them all within the Case, and shake it in his Hand without Hurt: Thus there are some Medicines which after the same manner, inclose, and blunt Acrids in the Body: Suppose likewise, a Person had several Instruments made of Iron, and void Sheaths answering to every one of these Instruments; one Sheath would not fit all the Instruments; so in the Body there are Humours, which may be blunted by one Medicine, and not by another. First therefore, let us treat of general Demulcent Medicines.

THE first Kind consists of mild and gentle Oyls, fresh drawn from Vegetables; all these obtund acrid Particles, thus all Seeds bruis'd and squeez'd, distil an Oyl, which if mix'd with Poyson, or any alcalinous or acid Salt, weakens their Acrimony internally and externally. Hither may be referr'd all Sorts of Corn in the full Ear, all sweet Nuts, and oily mild Seeds. A second Sort of general Demulcents, are Infusions made of the like Seeds and Plants; as for Example, A Mucilage of the Seeds of Quinces, Seeds of Hyssop, white Lillies, Violets, white Mullein, &c. or Infusions of such Things which yield a gentle affwaging Liquid; likewise oily Medicines of the first Class infus'd with these Seeds.

A THIRD Kind of general Demulcents, contains only a distill'd Oyl, viz. Oyl of Wax; for all other distill'd Oyls are acrid.

THE fourth Sort of Demulcents, are natural Oyls of Animals; for Example, Fresh Butter and Cream very much assuage all Sorts of Acrids; as also does the Fat which is collected from those little Bags, describ'd by *Malpighius*, about the Mesentery and Reins. But neither Art nor Nature can furnish us with a better Demulcent than the Marrow of Animals; the Fat of Fowls, as Ducks Geese, Hens, Capons, &c. is better than the Fat of Beasts.

THESE general Demulcent oily Medicines, are Remedies against Acrids of all Sorts; in the most violent Scorbuticks, when the Bones crackle within the Skin, asswaging and blunting Medicines must be given, and these of the first Class are the best, especially the Marrow of Animals, which far exceed all the rest. Persons troubled with a wandring Gout, find themselves well, if they take one or two Ounces of Linseed Oyl every Morning. These Medicines will also obtund other acrid Bodies; and even Poyson, as Oyl of Vitriol, Arsenick, Mercury sublimated, *Lapis infernalis*, &c. if bruised, and pounded together, they have the same Effect within the Body, if taken in large Quantities, and certain Diseases. Where an Acrid is predominant, as in the Scurvey, if the Patient eats fresh Butter, or Oyl of Sweet-Almonds, Marrow or Cream, he may be cured; especially if he takes every Morning an Ounce of Oxe's Marrow, and drinks after it a Potion of a proper Decoction; and then stirs his Body till he Sweat a little, that the Oyl may be forc'd thro' the Veins; after this manner are Acrids in our Bodies wrap'd up and inclos'd within the Globules of Oyls, and so are render'd inactive. These oily Medicines are likewise deficient in other Distempers, when several excellent Medicines will do no good; as it happen'd to a Person very much afflicted with the

Gout, who try'd all Things without Success, till at last he was cur'd by drinking every Morning ʒj of Linseed Oyl. Thus much for Oily Medicines.

A SECOND Class of Demulcent Medicines, consists of all such farinacious Things, out of which an Oyl cannot be express'd, given either in the Nature of a Decoction, Emulsion, or Paste: These by their Glutinous and oily Particles, obtund Acrids; of which Nature are the Juices of Herbs that are almost without Taste or Smell; as for Instance, Bur-rage, Buglos, Mallows, Marsh-mallows, Bear's-breech, *Mercurialis*, Pellatory, Violets, Mullen, White-Lillies, Cucumbers, Mellons, Pompions, Citrons, Lettice, Nymphaea or Water-Lilly, Com-frey, &c. Decoctions made from any Parts of these Herbs, as from the Leaves, Seeds, Roots, especially from the Seeds of Apples, Quinces, Straw-berries, are Demulcent; for there is no Poyson, if it be in a Part where we can reach, but if a great Quantity of the fore-mention'd Medicines are quickly taken, either in Juice, or in Decoction, is more easily asswag'd than by any other Remedy: Thus in an Ulcer of the Lungs, which consist of hot acrid Particles, if the Person affected eats Lettice, in all Probability he may be cured; whereas if he or she make use of volatile Salts, they may die. This is the Reason that the Ancients were so lavish in eating Cucumbers and Lettice against Poysons and venomous Bitings. After the *Alvus* is loos'd by these Medicines, if the Laxation be too violent, it may be corrected by Opium. Now it signifies not much which of these Plants is taken, where only the obtunding of an acrid Body is design'd; thus the Decoction only of Cucumbers, in the Gout, Rumatisme, &c. is wonderful beneficial. There is the same Reason it should be beneficial in a Consumption.

THE third Class of Demulcents, comprehends all Seeds out of which an Oyl of the first Sort may be extracted, if reduc'd into a Meal, or made up into a Pultis, or Emultients: Hither belong sweet Almonds, Pistake Nutts, Rice, Buck-weat, Hazel, Cocoa, and Walnuts, Seeds of Mallows, and Marsh-Mallows, Water-Lilly, and several others, which being reduc'd into a Pultis, or Emulsion, and taken plentifully with Water, are very good against all acrid, metallick, vitriolick, and other Poysons.

THE fourth Class consists of viscous and unsavory Gums, collected from Plants, as Gum *Tragacanth*, Gum of Cherries, Apples, Pears, &c. Thus in the Small-Pox, when Death is reasonably fear'd by reason of Pissing of Blood, if an Infusion of such Gums be exhibited, it is very good, for they obvolve and glue together: Thus if an Infusion of *Olibanum*, be given, it is more efficacious than all others.

THE fifth Part is taken from Animals, and their succulent Parts, (except the Urine) which are all Demulcents in sound Animals. As to the Objection, That Acrimony is lodg'd in the Juice of the Pancreas, Stomack, and Spittle; I answer, It is false, because they may be convey'd into the cooler Parts, into the Eyes, without Detriment. All the Parts of Animals, either solid or liquid, when decocted, yield a Jelly: Thus Eggs boil'd a long time in Water, become gelatinous; the same may be said of the *Lympha* in the Blood, and of all the Liquids in our Bodies, except Fat, the Bile and Urine. Now a Jelly is nothing else but a Solution of the nutritious Juices, which lay conceal'd in the solid Parts of Animals. The solid Parts likewise yield a Jelly; for a Decoction of Flesh Bones, is nothing else but a Resolution of the latent Blood and *Lympha* which appear'd not before. Thus all distill'd Things yeild the same Principles, and there remains only pure Earth, instead of the solid

solid Parts, which distill'd again yeilds nothing at all; therefore all gelatinous Decoctions of the Flesh, Bones, Ligaments, Tendons, Intestines, Stomach of the *Lympha*, and the Blood, are really Demulcent, or obtunding of acrid Humors.

Corol. THERE are infinite Diseases fix'd in Acrimony, which may be remov'd by Decoctions and Broths compos'd and made up of the forementioned Things, and if frequently used by Persons in a very languid Condition of this Nature, they will obvolve, blunt, and sweeten the acrid Particles in their Bodies, and so cure them.

THESE following Medicines are particular Demulcents.

1st. ALL Things Terrestrial, which are call'd absorbent, altho' by their acute Figure are hard and rigid, and would mechanically corrode the Parts: Thus Iron when made rough has the Power of Wounding, for an acid Acid, which is of an absorbent Nature becomes Demulcent, as Crabs and their Claws, all Corals, and all Sorts of Pearls, Oyster-shells and Shells of Snails, and other Shells; all these Things equally absorb and sweeten Acids, as do also Mother of Pearls, and the Jaws of Pikes and other Fish, all dried Bodies, all Calxes distill'd from the Solid Parts of Animals, as Bones, Flesh, &c. the Bezoar's Stone is very proper to be given, to hysterical Persons, who are troubled with a bitter Choler, altho' an Ounce of those Stones which are found in Crabs, in such a Case, is as effectual as an Ounce of Bezoar: Hither also belong all natural Bolusses, as Clay, Chalk, all Stones, Bole of *Armenia*, the Earth of *Lemnos*; all these absorb Acids, and are attended with a certain Degree of Effervescency: Hither belong the pounded Calxes of Metallic and Semimetallic Bodies, Powder of Steel, Plates of Lead, *Marchasis*; one Drachm of Spirit of *Mercury*

Mercury will kill, but if mix'd with Filings of Steel, it is no longer a Corrosive, likewise the *Lapis infernalis*, if mix'd with those Stones found in Crabs, &c. is render'd Benign and Mild.

2^{dly}, ALL Acids in Relation to all Alcalies, altho' the Acids were more corrosive, before the Mixture, than the Acids, are Demulcent. Hither therefore belong first, all ripe seasonable Fruits, as Apples, Pears, Grapes and Currans, &c. which are of a sharp Taste, these are general Remedies against all Acids, which is the Reason they are very beneficial in all Distempers, where alcalinous Salts are lodged in the Blood, and whatever some may say, the Juices of these Fruits are of more virtue in burning Fevers, Pestilence and Small-Pox, than any other Medicine. Secondly, Sower Cream or Milk, or Butter-milk drank when there is an Acid predominant, is an excellent Remedy. *Tulpius* in his Observations tells us, That he cur'd himself of a *Diarrhoea*, which was occasion'd by acid Alcaly, with Butter-milk, when all other Remedies fail'd. Thirdly, All fermentated Acids, from Summer Fruits or farinacious Things; for the Juices of Fruits and Meats become sour with Heat, and are turned into an acid Nature, and into sharp Spirits, which rather dilute than coagulate the Blood; of this Nature is *Mosellan*, or Rhenish-wine: Now Wines are generally forbid in hot Distempers, but Rhenish-wine often cures them, and is very beneficial to those Persons, whose Bodies are over-run with alcalinous and chollerick Humors, and hence we may determine what Sorts are good for every particular Person: Hither belong all Sorts of distill'd and fermentated Vinegars, as Tartar, &c. Hitherto belongs that Food which the Britons call *Flummery*, which is very good in hot Distempers; as for Tartar, it is nothing but a dry Vinegar. 4^{thly}, Acid Fossiles, either natural or produc'd

duc'd by Art, the more ponderous they are, the more acrid; they are more absorbent than Vegetable Acids; but it is to be observed, That these Fossiles corrode before they come to be mixed with the Alcaly, but after the Mixture they become mild and gentle, as we see in Tartar Vitrioliz'd, which is not equal to the Acrimony of Sea-salt. As all Acids are Demulcent in respect to Alcalies; so *vice versa*, are Alcalies in respect of Acids. Now that is call'd alcalious Salt, for Instance, which is produc'd by a violent Combustion from Plants; a volatile alcalious may likewise be extracted from the Liquids of Animals.

3dly, ALL Alcalies in Respect of Acids, which are produc'd either from Vegetables or from Animals. From Vegetables by Combustion, by which Means an alcalious fix'd Salt is made, or by Putrefaction of Plants, and there is a certain volatile Salt extracted from the Parts of Animals, which may be term'd an alcoliz'd Salt: But all these Things are to be sought from *Chymistry*. When these Acids encounter an Acid, they grow hot, and obtund it, and make it mild and gentle: Hither also belong volatile Salts depurated, for altho' they are acrid in themselves, yet when mix'd with Acids, they constitute a Body Demulcent.

4thly, FERMENTATED hot Spirits in respect of Alcalies and Acids; for if they be mix'd, dissolv'd, and distill'd with these, they cause them to lay aside all their Acrimony, and form a mild Salt: Thus all Acids hitherto known, mix'd with *Alcohol* of Wine, loose their Acrimony: Thus Tartar mix'd with *Alcohol* of Wine, Spirit of Nitre, Oyl of Sulphur, Vitriol, if long dissolv'd in *Alcohol*, loose their acid Nature, as doth also Spirit of *Sal Armoniack*.

Corol. HENCE it is plain what is Antidotes against Poyson, whether mechanical or chymical.

Mechanical

Mechanical Poysons are such as are evident to the Senses, which act according to the Shape and *Moles* of their Parts: Thus a cutting Salt operates, and after this manner Cristaline Glasse, and Metal pounded, for no one is so foolish as to think, that they operate according to the Qualities of Chymical Alcalies, and Acids, &c. they are best cur'd by being not suffer'd to come to a Suppuration, and must be diluted, and blunted by oily and glutinous Bodies, by Emulcent, and thickening Bodies, as by *Tragacantha*. Chymical Poysons are sometimes acrid, as Arsenick, &c. but we are ignorant how they operate on the Body, neither has it yet been particularly demonstrated. Acrids of a contrary Nature to these which may be called Specificks, are Remedies against them, tho' several Diseases arising from acrid Poysons, may be remov'd from Demulcents in general.

C H A P. XIII.

Of Alterative Medicines.

ALTERATIVES are such as change the very Figure of those Parts which constitute the Liquids, not by putting other Particles that are Blunting, or Demulcent to them, but only by changing them in their proper Shape and Substance. Thus a Knife melted by the Fire and converted into thin Plates, is alter'd. It is commonly thought that we have several Medicines, which are capable of changing the Particles in our Liquids, but in reality they are very few. Now if any Thing adhere within our Liquids, how should they be changed but by the communication of Motion from the neighbouring Parts; for we must receive it from other neighbouring Parts; so that this Alteration in our Liquids,

quids, must be made by a vital intestinal Motion; or by a mutual Attrition of the Parts one with another. Now this Change may be wrought two Ways: 1st, By inclosing the obtuse and blunt Particles about the acute ones, whence arises a third Body which is mild and gentle, after the saline Particles of our Body are chang'd; now that which is obvolv'd, or inclos'd, arises from a mutual Attrition of the Parts. 2^{dly}. When the obtuse Particles are mov'd among the Particles which are very flexible, which having very little Matter in their Points, are easily bended and broken; by Attrition the Figures and Shapes of the Parts are also chang'd. Now this Attrition of the Liquids depends upon the Motion of the Solids forcing upon them, which changes their Shapes, and excites a different Motion in the Blood, from what there was before; but every Alteration of Figure depends not (as is mostly believ'd) upon Putrefaction, Fermentation, Effervescency, or Ebullition; for such Things are not discover'd in Bodies; but the Alteration of Figure (as is said) consists in the Operation of Solids upon Fluids; so that to change the Liquids, is to change the Degree of Circulation in the Blood. Therefore a temperate Motion of the Liquids, and a moderate Circulation of the Blood in healthy Persons, produces very mild and benign Liquids; but an increase of Motion in the Blood, will cause very acrid alkalious Juices, which will produce hot Sweats, red Urine, &c. when the Motion of the Blood is lessen'd, there will arise an acid Acrimony in the Liquids, because the Chile, which of itself will become sour in the Body, unless it be chang'd into an Ammoniac Nature, will grow sour; this is the Reason that in Women and Children Acids predominate, from a Defect of Motion; and therefore *Chalibeats* are very beneficial to them. 2^{dly}, When the Motion of

of the Liquids are augmented, they always turn into an alcalious, volatile Nature. 1st, By that Means the Salts are altered in Shape, and set at Liberty, 2^{dly}, All Things that come from the Blood in a healthy Body, if fomented by a mild gentle Heat, pass into an alcalious Salt, as Urine, Spittle, &c. now the oily Particles of our Body, upon an Increase of the Circulation of the Blood, become acrid as express'd Oyls which are very mild and gentle, but if bruis'd or pounded too long, putrify, and become very acrid, all mild Bodies are Globular, and Acrids are acute, as may be seen by a Microscope; these Globular Bodies when putrified are relaxed, and no longer seem Globular, but of a thin and fine Shape, and turn acrid if they remain long in the Body: But the Wise Author of Nature, hath form'd several Parts in our Bodies, whereby these subtle acrid Particles may be let out; as for Instance, Sweat, Urine, &c. Moreover, Secretions alter our Liquids, and if they were narrowly observ'd, we should find several Diseases to arise from thence. I am of Opinion, that by an exact Observation of the Pulse and Respiration, we may determine what is the Figure or Shape of the liquid Parts.

C H A P. XIV.

Of Dilating Medicines.

BY Diluting Medicines, I understand such as being mix'd with any Fluid, render its Particles more fluid. A Body is said then to be more fluid, when its Particles can be separated from each other with greater Ease, and less Force.

Now

Now there are two Causes to constitute Fluidity :
1st, A greater Tenuity of the coherent Particles.
 And, *2^{dly}*, an Interposition of some fluid Body ; as
 Meat, which of itself is not fluid ; yet becomes so
 by being mingled with a large Quantity of Water.
 Now since fluid Particles are insensible, a Diluting
 Medicine ought to be so too. *1st*, It ought to be of
 a quick and fluid Nature. *2^{dly}*, It ought to be thinner
 by Dilution. *3^{dly}*, After their Mixture they
 ought to retain the Fluidity of their Liquid ; for
 there are some thin Bodies when mix'd do not dilute :
 These are the three Conditions requisite to a
 Diluting Medicine, and if one of these be wanting,
 it will not dilute.

WATER is the only Diluter in Nature ; for all
 the other Diluters do act after a different manner ;
 as for Instance, by Stimulating, Attenuating, &c.
 Thus Wine indeed is a greater Diluter than Water,
 but this depends upon its Stimulating and Diluting
 Faculty together : Oyls will make the Blood to
 stagnate, and tho' they are thinner than the Blood,
 yet when mix'd with it, coagulate. Salts are solid,
 and when depriv'd of their humid, oily Particles,
 become Chrystalline, and do not dilute, but operate
 by Stimulation.

Prop. I. If Saline Attenuating Medicines are
 mix'd with Water, the Water dilutes more forcibly
 thus if *Sal Gem, Borax, Polucreston, Nitre, Sal Armo-*
niack be taken with Water, they are strong Diluters,
 and are likewise very great Resolvers in Fevers.
2^{dly}, Warm Water attenuates and dilutes the Blood
 more than the Cold, because more easily separated
 from each other, than when cold. *3^{dly}*,
 The Motions of the Stomach, and Intestines, the
 voluntary Muscles, are great Helps to Dilution ;
 for by the violent Motion of all these, the Water is
 forc'd to penetrate into the lacteal Vessels, where-
 by

by the Velocity of Motion in the Body is accelerated, therefore when the Blood is to be diluted as in a Pleurisy, let Persons thus affected drink Water and Salt, and let the Person breath strongly, by which Means the Medicine is driven into the lacteal Vessels, into the *Ductus Thoracicus*, into the *Vena Subclavia*, and so into the Heart, and all over the Body; by this Means several chronical Distempers are cured. Where a Dilution of the Blood is requir'd. Let the Patients drink Salt and Water, let them breath hard, then walk and exercise themselves, then drink again and keep in Motion, and let this be repeated, as often as is requir'd. This is the best, tho' uncommon, Method of dissolving Medicines that I know of.

C H A P. XV.

Of Coagulating Medicines.

BY a coagulating Medicine, I understand that which changes Particles constituting a Fluid, and forces them into little concreted Masses, which cannot be again easily separated, so that those Particles which were loose before, when coagulated unite close together. Now a Liquid cannot be said to be coagulated, as to its Particles consider'd singly, but in Respect of its general Particles consider'd together.

THERE are three Ways of Coagulation: The 1st, is by expelling the intermediate fluid Particles which hinder the thicker Particles from touching each other. Things which promote this End, are 1st, Such as farther Secretions, and increase Velocity in the Blood, as hot and stimulating Medicines, the first Effect of these is to dissolve, and after to co-
I agulate,

agulate: their second Effect is to put some Body between to abforbe the Liquids. The third and moft destructive way is when any Body is interposed which joins the Fluids to it, but does not abforbe them.

REMEDIES which exprefs the Liquids, have been enumerated before. The second Sort of Coagulators, *viz.* which is by the Interposition of fome other Body, are firft fome natural Vegetables, which being mix'd with Vitriol of Steel, produce a black Tincture, and if they are mix'd with Liquids either when they are Hot, or Cold, will tinge them of a black Colour, and give them a black Taffe: Such are Galls, which will coagulate the Whites of Eggs, and Spittle: Red-roses and their exprefs'd Juice perform the fame in our Liquids, Wall-nuts and Green-nuts, especially in their Coats, coagulate our Liquids and contract the Mouth; when they are Ripe, they rather diffolve than coagulate the Liquids: Rinds of Pomegranates, Juice of *Acacia*, and almost all fcur Juices, Verjuices, the juice of green Figgs, Medlars, green Apples; I fay, if any of these immature Juices be injected into Veins of Animals, they will caufe no Detriment there, nor in the right Ventricle of the Heart; but as foon as they are convey'd within the narrow Veffels of the Lungs, the Blood is coagulated and runs to Heaps, and the Animal dies; and if these Fruits are eaten, the Juice enters not the Lacteal Veffels, nor operates upon the Blood, but acts upon the Intestines by stimulating them. By this Means feveral Distempers in the Intestines may be cured.

THE second Class of Vegetables is from Acid Vegetable Spirits, when brought to the highest Degree of Acidity; or, as the Chymists speak, if they have their Powers very much contracted;

And

And thus distill'd Vinegar, if diluted with a great Quantity of Water, rather attenuates, than coagulates the Liquids. Hence it is recommended in several Diseases, for that Purpose; but if the Vinegar be concentrated, and immediately mingled with the Blood, it coagulates our Liquids. It may be concentrated two Ways; 1st, By being pour'd into Lead; for Vinegar dissolves Lead, and makes what we call Salt of Lead; for the aqueous Parts of Vinegar exhale, and the acrid Part remains, which may be call'd Sugar of Lead; and if this be mingled with the Blood, it will immediately be coagulated. 2^{dly}, 'Tis concentrated, when we pour Vinegar upon Verdigreese, which if it be dry'd, let it be put into a Retort, and Fire being put under, it may be squeez'd out. It is to be observ'd, that Vinegar is very ponderous in dissolving our Liquids.

THE third Class of Vegetables which operate by Interposition of Bodies which are Liquids of themselves, consists of Fossils, especially some particular ones: Thus Salt of Vitriol, Allum, Vitriol of Steel, Copper, Tin, Mercury and Silver, coagulate the Blood, and Urine, *Saliva*, and the Whites of Eggs. Some of these are vulgarly accounted Attenuators; as Vitriol of Steel, which being injected into the distended Veins, causes Concretion, &c. Thus Vitriol of Copper, by its acid Nature coagulates the Blood; and even sublimate Mercury, which taken in a small Quantity, is one of the greatest Attenuators, yet if mix'd with the Blood, concentrates its Acidity. Spirits of Sulphur, (altho' *Fracassatus* is of a different Opinion) Oyl of Vitriol, Spirit of Sea-Salt, *Sal Gemm*, and Nitre, are violent Coagulators of the Liquids. 'Tis to be observ'd, That all these Things already mention'd, have a twofold Power of operating within the Body: 1st, By acting upon the Solids; 2^{dly}, Upon the Fluids. When they operate

upon the Solids, they corroborate and strengthen them; by which Means the Solids resist the Liquids with greater Force, and consequently the Liquids, press more upon the Solids; and here they are Attenuators, but when they operate upon our Liquids they coagulate, and the *Moleculæ* or little Masses become bigger. Hence may be explain'd how possible it is that certain Medicines should often have quite different Effects upon our Bodies.

THE third Class of Coagulators, comprehends such Bodies, which being apply'd to liquid Parts, constitute one Coagulation: Such are Poysons, and some Medicines, which may properly be reduc'd to four Sorts: 1st, All native dry'd Earths, as Chalk, Boluses, Clay, if burnt with a quick Fire, in their Application, will absorb the Liquids, because by Fire several of their Pores are evacuated, and the Water press'd by the *Atmosphere*, enters into those Pores, where it finds the least Resistance; and thus the absorbed Liquid makes a sort of Coagulation with that Body it is joyn'd to. After the same manner are the Liquids of our Bodies absorbed, and constitute one Coagulation with the Body they meet with. The second Sort consists of Shells of Fish burnt to Ashes, as Oyfer-shells, which after they are burnt constitute a white Calx, which is used in making Walls; this absorbs all aqueous Particles, and concretes so hard, that the Stones of such Walls will last for several Ages: The same may be done with the Eyes and Shells of Crabs, Mother of Pearl, Coral, and such-like. The third Part comprehends Horns, with solid and fluid Parts, reduc'd to Ashes; as the Ashes of Bones calcin'd, &c. for these Things when burnt by a violent Fire, leave Ashes behind, which are very styptick, and if pounded, absorb Liquids and coagulate with them. The fourth Sort consists of the Remnant of Metals by a violent Fire; as *Colcothar* of Vitriol

Vitriol burnt very hard, which if mingled with the Blood, turns as it were into Stone, and Eggs if apply'd to it will shrink, and contract themselves. Thus we may observe that the greatest Openers, are also the greatest Coagulators.

C H A P. XVI.

Of Medicines that increase the Motion of the Blood.

IT is commonly suppos'd that there is a two-fold Motion in our Liquids. The first Motion is call'd Intestinal, whereby the Parts are mov'd within each other, the same respect being had to the Sides of the Vessels; but this Opinion depends upon the *Cartesian* Notion of Fluidity; it supposes all Particles of a Fluid to be in continual Motion; whereas in Reality 'tis sufficient to Fluidity, that the minute Parts shall easily recede from touching each other. The second is, when the whole Mass of Liquids is convey'd thro' the Vessels, and this is call'd a trajectory Motion, which is perform'd by forcing the Liquids in that manner describ'd by *Dr. Harvey*, viz. by an Increase of an Oscillatory Motion, either in the Arteries, Heart, Veins, or *Lymphatick* Vessels. Now a Medicine of this Nature is such as accelerates the Motion of the Liquids thro' the Vessels, either from or toward the Heart: The proximate Cause of this, is the mechanical Contraction of the Heart; so that whatever increases the contractile Force of the Heart, the Contractibility of the Vessels, the Flexibility and free Course of the Liquids, increases also the Flux, and Motion of the Liquids; an increase of Motion in the Liquids depends upon a large Quantity

tity of liquid Juice being increas'd, and turn'd towards the Heart. Medicines which increase this Motion, are threefold.

1st, ALL Stimulators, which operate upon the Nerves, especially those of the Heart; thus Epileptick Persons, Hypochondriack, Hysterick, when scarce any Thing can be alter'd either in the Solids or Fluids, and they lie as it were dead; if the Nostrils be rub'd with a little Feather, or Odours be apply'd to them, which may vellicate the Nerves; especially those which are nearest the Brain, as of the Mouth and Nose; I say, by these Means they may come to themselves and recover: Besides these, we scarce know any Medicines which operate properly upon the Nerves of the Heart; for all Aromaticks, which are call'd Cardiacks, operate upon the whole nervous Kind; and secondarily only upon the Nerves of the Heart. 2^{dly}, Relaxors, which by removing the Resistance of the minute Vessels, increase the Flux of the Liquids. 3^{dly}, All Medicines which attenuate the Blood, belong hither. 4^{thly}, Which excite Acrids in the Fluids. And 5^{thly}, All diluting Medicines. Therefore the first Class of Medicines which increase Motion in the Liquids, is very beneficial, when there is Strength in the Vessels, and Fluidity in the Liquids. On the contrary, when they rend the Vessels, and expel the most liquid Parts, they are prejudicial. If these stimulating Medicines be apply'd to Bodies when almost dead, they will bring them to Life again; as we may understand by Experience; especially in Dormice, which sleep all the Winter; in Frogs, and Swallows, which seem to die in the Winter, but in the Summer return to Life by Stimulation and Motion; and even in the Winter, if kept in warm Water for some time.

THE 2^d, Class comprehends such Medicines as
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accelerate the Motion of the Blood, thro' the Veins to the Heart. The Veins of themselves scarce promote the Motion of the Blood, by Reason of the Laxity of their Sides; however, they do not further the Motion of the Blood from the Application of the former Medicines; for the Motion of the Blood thro' the Veins to the Heart, depends upon the Motion of the Blood which remains in the Arteries. Now by applying Heat or Rubbing, I may excite the Strength of the Solids, and augment the Motion of the Liquids in the Veins; which is done by compressing the Veins, and by forcing the Liquids from the extreme Parts towards the Heart: which happens two ways; 1st, By compressing the Veins thro' the Muscles, as in Running, or in any other Exercise of the Body. 2^{dly}, When any external Motion compresses the Brain, as in Bathing, Frications, &c. the best Thing I can advise, when the Liquids are sluggish in Motion, as in Ascites, *Hysterical Passion*, Green-Sickness, &c. is to rub the Body all over several times in a Day. This will have more Effect in this Distemper than any Remedy whatever.

THE 2^d Method of Accelerating the Blood in the Veins, is by promoting the Flowing of the Blood out of the *Vena pulmonalis*, into the Left Ventricle of the Heart, which is done by reason of Respiration. Hence if Persons affected with a *Leucophlegmatia*, are able to breathe strongly, and quick, to Cough, and Hollow, the Motion of the Blood will be excited, which otherwise is apt to stagnate.

THE third Class consists of such Medicines as supply Deficiencies in the Liquids. Much Detriment often arises in the Body, not from a Deficiency in the Solids, but from a Want of a due Quantity of Liquids: Hence in dry Bodies, or where it happens that the Vessels are evacuated, so that the Parts touch not each other; Creams and Broths

drank in great Quantities, restore the deficient Motion, and repair the lost Spirits. I have nothing to say of Ebullition, Effervescency, or Fermentation, because I doubt whether such Things happen in the Body or no: As for volatile Salts and Spirits, it is hard to understand how they operate. Spirits of Wine have already been comprehended among the Relaxors, which is to be observ'd, That we cannot bring our Liquids to what Degree of Celerity we please: As for Instance, If any Body be forc'd thro' a narrow Passage in a determin'd Time, *viz.* in four Minutes, and if afterwards it be driven with a double Force; it doth not follow that it should run thro' that narrow Passage in two Minutes, because a new Resistance arises: Thus if a Horse in the Space of an Hour, can draw a Load four Miles, it doth not follow that two Horses in the same space of Time can draw it eight Miles, or four Horses sixteen Miles, and so on, because always fresh Resistances arise. Now there are Degrees of Velocity, which a Ship at Sea cannot endure, but is rather driven out of the Water: The same may be apply'd to our Liquids; for unless the Strength of the Heart be trebly fortify'd, the Velocity of the Blood cannot be doubly augmented. The Velocity of the Blood in Fevers, is not so strong as imagin'd. Hence we see what is to be thought of that new Hypothesis concerning Effervescency, when the augmentation of the Strength of the Heart, is always accounted as reciprocal to the Motion of the Blood, without any respect to new Resistances which arise.

MEDICINES which promote the Circulation of the Blood, are not different from the Medicines mention'd before in the third Class. Of these Medicines there are three Sorts. 1st, Such as render the Passages open, as Relaxors, Strengtheners, and Aperitives.

Aperitives. 2dly, Such as make the Liquids fit for this Purpose; as Attenuators, Diluters, Movers. 3dly, Such as fortify the Heart; which is done by stimulating and supplying the Liquids.

STAYING Medicines are such, as remove or diminish the above-cited Cause of Motion. They are therefore, 1st, Such as remove Stimulators, as the Stimulation, or Pricking in the Heart, the Reciprocation of the Vessels, the Thinness of the Liquids, the Laxity of the Vessels. 2dly, Such as hinder the Compressing of the Vessels, Veins and Muscles, and also of Respiration. 3dly, Such as remove acrid and diluting Bodies. 4thly, Such as obstruct the increase and Tenuity of the Blood, so that the Particles can no longer touch in a continu'd Stream. 5thly, There are certain Specificks which belong hither; as *Opium*, which quiets the Motion of the Nerves, and the *Cortex Peruvianus* which stops the impetuous Motion of the Blood; the last is a Specifick in Fevers.

C H A P. XVII.

Of Medicines which operate upon the Solids and the Fluids together, or such as promote Secretions.

THE first Class of these Medicines contains all the foregoing ones, which was said to operate under different Names; for the same Medicines, as far as they are said to operate upon Solids, have been reduc'd to Medicines acting upon Solids; and in respect of operating on Fluids, to a general Class of Medicines operating upon Fluids. But now as far as they are consider'd to act upon both together in a combin'd Operation, they may be reducible to this Class.

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ALL Medicines of the second Class, change their Nature according to the Variation of the Part to which it is apply'd, which is the Foundation of all Medicines: Thus the Root of Jalap, if apply'd to the Nerves, operates like a *Vesicatory*, and raises Blisters; but if apply'd to the intestinal Glandules, becomes a *Hydragogue*; and if given with Treacle, is *Sudorifick*; if apply'd with Hony or with the Yolk of an Egg, shall excite Pains: Thus Balsam of *Capivy*, if a Liquid distill out of the Nerves, 'twill stop it; and is likewise very good in Cleansing Wounds. And thus Medicines change their Nature, according to the Difference of the Parts affected.

THE first Class consists of such Medicines as put the Blood in Motion: Of which I have treated before. All the rest are to be sought from the following Class.

Now Medicines of the second Class, are such as promote Secretions. By Secretions, I understand a Derivation, or Separation of any Liquid from the Particle which first constituted it. In every Secretion, there are two Things requisite: 1st, The Flexibility of the Vessel. And 2^{dly}, open Passages to transmit the Liquid. For *Belinus* and *Pitcarneus* demonstrate, That all Secretions depend upon the fix'd Diameter of the Vessels, and its Flexibility, whereby such Particles are prepar'd, and sufficiently put in Motion, which constitute a Liquid that may be secreted.

MEDICINES that promote Secretion are, 1st, Such as augment Velocity of Motion in the Liquids: As long as they operate thus, they promote Secretion, altho' afterwards they hinder it. 2^{dly}, Such Medicines as dispose particularly the Parts of the Body, and make them fit to receive certain Particles of the Liquids, and after Reception to convey them thro' themselves. This does not depend upon the Liquids,

Liquids, but is owing to the Removal of Resistance in those Parts; and thus every Mass is derived according to the mechanical Law of Resistance. Now the more Resistance is remov'd, the more Liquids are removed into those Parts, and Secretion is consequently augmented. This is the Way of promoting Secretions, *viz.* by increasing the Circulation of the whole Mass, but inflexible Vessels. All Things which increase Flexibility, augment Secretion.

MEDICINES which generate Milk, come under the first Class of Secretions: Which I shall treat of in this Chapter. If an Artery should be cut immediately after eating, the pure Chyle will appear in the Blood; after five Hours its Quantity will be diminish'd, and only some few Particles of the Chyle will swim in it; after twelve Hours, supposing the Person to have eaten nothing, no Chyle can be seen in the Blood; after fourteen Hours, if the Person have eaten or drank nothing, a Child will not suck; for the Milk is then of a perfect Urinous Nature, which happens also to Women in Fevers: If after this the Child sucks, it will suck nothing out but pure Blood. *Lewenboek, Malpigi* and *Rudschius*, demonstrate, That if any thin Liquid be injected into the Artery of the Breast, it proceeds as far as the small *Folliculi*, and these *Folliculi* have minute excretory Ducts, all which terminate in the Nipple; by these the Milk is secreted and drawn forth.

Now Medicines which generate Milk, breed Abundance of Chyle. Women have much wider Vessels than Men; hence young Women are unfit to suckle; and such as have the Breasts loose and flabby, are most fit to suckle, and make the best Nurses.

NUTRIMENTS which breed Abundance of Chyle in Nurſes, and conſequently Milk, are ſuch as are of a ſimilar Nature to Milk: Thus in the firſt Place, new Milk, if a little Salt and Sugar be mingled with it. 2dly, Cream; a few Spoonfuls of ſweet Cream drank in a Morning, is very beneficial when a Nurſe's Milk is too thin. 3dly, *Tryfans*, being a Decoction of Liquoriſh and Raiſins, with Barley huſk'd. 4thly, Things compounded of Oats, conduce much to this. And 5thly *Panada*, which is a Mixture of Bread, Wine, Water and Ale. 6thly, Emulſions from oily and farinacious Seeds, and Almonds, &c. 7thly, Broths of Fleſh, are very conducive to this Purpoſe, eſpecially when Infants are afflicted with acid Humours. 8thly, Eggs taken either with or without Milk. 9thly, New ſweet Ale not much fermented. By theſe Means Milk may be eaſily generated. It is to be obſerv'd, That certain Women, if they take the foremention'd Things when an Infant ſucks them, the Child ſhall draw them out almoſt purely as they were taken in. In ſuch a Caſe a Child muſt not be ſuckl'd, untill the Nutriment have been circulated with the Blood, viz. not till half an Hour after Eating or Drinking, or longer time.

THE ſecond Claſs of Nutriments breeding Milk, conſiſts of ſuch as convey Abundance of Chyle after its generating to the Breasts, which is done by removing the Reſiſtance of the Breasts: As 1ſt, All Sorts of Cupping-glaſſes apply'd to the Breasts: This *Hippocrates* adviſes. 2dly, Fermentations of ſweet Milk; or let Cloths ſteep'd in ſweet Milk, and then ſqueez'd, be apply'd hot. 3dly, Frictions. Hence Nature hath made the Breaſt and Nipples capable of Irritation, as the genital Parts are, that by this Means a larger Quantity of Liquids may be drawn to thoſe Parts.

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THE third Class consists of such Things as draw forth the Milk after it is concocted; which is done chiefly by Sucking the Breasts: If the Breasts be anointed with fresh Butter, and young Puppies be apply'd to them, they will suck stoutly. By this Means a Woman may preserve her Milk several Years. And I have known a Woman which suckled Children for eighteen Years together. Hence those Persons are very much mistaken, who recommend a fresh Nurse for every Child, as if the Milk could grow too old. Hence we see what an Opinion we ought to have of Ani-seeds, &c. which are recommended to generate Milk: They are indeed beneficial, where the Action of the *Viscera* is deficient. There are also other Helps to generate Milk, in some Women Stomachical, Splenical Medicines, are requisite, altho' they contain Abundance of Liquids as stand in Need of such Provocatives, by reason of the Sluggishness of the Vessels; an increase also of natural Motion is necessary. Hence Nurses ought to walk, or ride in Coaches, for the better Circulation of the Liquids.

C H A P. XVIII.

Of Medicines that generate Seed.

THIS Chapter consists of such Medicines as increase Seed, and promote its Secretion; but we are ignorant how the *Animalcules* in the Seed are generated. *Lewenboek* tells us, They are not to be found in any Part of the Body, but in that Liquid, which is separated in the Testicles. That they are not to be found in the Liquid of the *Prostate*, is evident

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evident from castrated Animals. Now there are four Things which augment the Seed.

1st, ALL such Things at augment Chyle, Milk and Blood, increase also the Quantity of Seed, and excite Venery. Milk taken in large Quantities, is a great Breeder of Seed, and renders Persons more salacious than Wine or Spices. Hence they who eat much of Vegetables, Eggs, or Milk, are very much addicted to Venery.

2^{dly}, ALL Medicines which convey a more abundant Quantity of chylous Blood towards those Parts where the genital Liquid is prepar'd; to this Purpose Fomentations, Bathings, Frictions, Emplasticks, Balsams made of Spices, are very conducive; as also Oyl of Rue and *Euphorbium*, Plaisters of *Melilot*: These will increase sufficiently the *Spermatick* Juice. The following Things are much commended by *Italians* as Specificks, who are much Admirers of such Delicates, viz. all Balsams, Emplasticks compos'd from Sea-Southernwood, Buffwort, Calamint, sweet-scented Ditany of *Crete*, Loveage, which are commended as salacious Herbs; Parsely, Savine, Savory, especially that of *Crete*, Thyme, Wild-thyme, Nepenthe, Wild-marjoram, as that of *Crete*, where Animals are most salacious; Pepper, Eringo-roots, Hedge-mustard, are great Provocatives to Venery; as are also Compounds from these Herbs made up in Decoctions, Lotions, Cataplasms, and Oynments.

3^{dly}, SUCH Things as cause a vehement Stimulation in the Liquids; as all Aromaticks stimulate the nervous Juices: Thus Onions, Garlick and Leeks, are great Incentives to Lust; which is evident from those Persons who eat them frequently, as the *Persians*, and *Egyptians* do, who are much given to Venery, and are scarce satisfy'd with one Woman. Hither belong all Aromatick Gums. Thus

Thus we see Hypochondriack People, to whom we have given for Resolving Obstructions, by taking them often become very salacious, as Mirrh, Aloes, Galbanum, Opoponax, Sagapen, Tachamabmack, Bdellium, &c. also Balsams, Capivy, &c. if these be used too much, will cause a Priapismus, and excite an abundant Secretion of Seed: Hither also belong all natural Salts, except Nitre, all volatile Salts, especially those that are oily, and oily Spirits as of Wine, which operate chiefly by stimulation Soapes, all Diureticks chiefly by Water excepted, Castorium distill'd, Aromatick Oyls, which operate two ways, either by increasing Motion or by Irritation.

4tly, THERE are specifical Provocatives to Venery, which act upon Bodies not fitly disposed, as Seeds of Dill, Vetches, Sativion, concerning which see Dioscorides, the Brains of Sparrows, and the Stones of salacious Animals, as of Cocks, &c. are very much commended, as likewise the Glandules of Animals which are of a similar Nature to the Testicles, as those which grow in the *Aspera Arteria* of Calves: All which are so beneficial, as they generate good Chyle, *Ultiocimus* a small Sea-fish, which if eaten is said to cause such an Incitement to Venery, as to induce a *Saluriacis*, or an Erection of the Yard: But I am of Opinion, that that Effect doth not depend so much upon the Fish, as upon those Things which are taken with it; for it is generally eaten with Pepper, Salt, Galangal, &c. A Milk Diet may be proper, because the Generation of Seed depends upon a good Chyle.

CHAP. XIX.

Of Apophlegmatizing Medicines in general and particular.

THOSE Medicines are call'd *Apophlegmatizing*, which extract as it were a *Mucus* or Flegm from the *Membrana Pituitaria*, describ'd by *Snider*. Concerning which Membrane, see *Snider* in his Treatise of *Cathars*. This Membrane is all red in the Veins, and the Arteries are more naked and conspicuous, and have less Defence of Nerves here than in any other Parts of the Body. Hence we observe to what Parts an *Apophlegmatizing* Medicine is apply'd. This Membrane extends itself as far as the *Sinus Frontalis*, (whence the Brain is said to be purg'd) and the *Sinus* of the *Os cuneiforma*, above which is situate a little Funnel, with a pituitary Glandule, from whence the Ancients imagin'd a *Mucus* to distill into the Palate thro' this Membrane, that the animal Spirits might be render'd more pure. But this is discover'd to be false: The Truth is, that thro' the whole *Duct*, describ'd by *Snider*, are infinite Glandules plac'd, which discharge a thin Liquid, like the *Serum* of the Blood, as Tears. Now by the Heat of the Body the thinnest and most moveable Parts evaporate; so that what remains becomes a *Mucus*, which constitutes a Balsam for the arterious and nervous Vessels. *Snider* demonstrates, That nothing can be separated in these Glandules, which does not proceed from the external carotick Arteries before it enters the Brain; The Nerves of this Membrane are extended as far as the *Sinus Frontalis* (as said before) and *Maxillaris* to the *Os Eschmoides*, the Palate, Nostrils, and the whole Jaws. Now *Apophlegmatizing* Medicines of
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the first Class, are 1st, All Abstersives. 2^{dly}, The whole Class of Diluters. 3^{dly}, All Stimulators; as for Instance, Water, especially if it be hot, Wine, *Venetian-Soap*, all fermented Spirits, aromatick Spirits, volatile Oyls of Salts, Decoction of Spices, all Sorts of Aromatics, either infus'd in Water, or in Spirits. These Things are given 1st, As Emetics, which are to be snuff'd up the Nostrils; 'tis incredible to believe of what Benefit all the forenam'd Things are, when thus drawn up; this may be observ'd in the *Lues-venerea*; the *Lues-venerea*, when the Jaws and Palate labour under an *Hemoragia*, and no Medicines can stop the Flux of the Blood, then the fore-nam'd Things will give Relief. The Use of this *Mucus* in the *Glandula Pituetaria*, is to irritate the Organs of Smelling; for without it the Nerves would be dry'd up, and have no Perception; so that in Venereal Distempers, when the Poyson begins to flow to these Caverns, a *Mucus* is retain'd with a venomous Matter, which causes incurable Ulcers, and Fluxes of Blood in the Nostrils, unless those Parts be cleans'd with the Remedies just cited. 2^{dly}, They are exhibited in the Nature of Gargarisms, whose Effect is to excite and promote the nervous Juice in those Parts, and to relax the Vessels, that all Things may be discharged with greater Ease. 3^{dly}, They may be taken as Masticatories, which are made of oily Powders, mix'd with Mastick; these are stimulating and cleansing. 4^{thly}, In the Nature of Collation. 5^{thly}, It may be administred in the Nature of a Lohoch, let Spices be mix'd with Honey, Oyl, Butter, Sugar, and so swallow'd. 6^{thly}, The Smoak from dry'd Spices may be taken in the same manner as that of Tobacco; for by that Means the Oyl and Salt is render'd thin and fine, which rushes into the Parts, and conveys towards the Mouth abundance of Liquids, which relax, stimulate and expell

whatsoever corrupted Matter they meet with. You must have recourse to Practice to understand when these Medicines are proper to be given, altho' they cannot be more beneficial in any Case than in the *Lues-venerea*, when the Jaws are seiz'd with Pains.

STERNUTATORY Medicines are *Apoplegmaticizers*, and are such as by their acrimonious Nature stimulate the *Membrana Pituitaria*: Hence the Instruments of Dilatation are extended, and the Passage into the Lungs is increas'd; so that they get in in great Abundance, (the *Thorax* being dilated as much as possible) and keep in until by the Heat of the Body it is rarify'd, and then it is expell'd at the first Shock, and the Jaws are clos'd, so that it cannot go out by the Mouth, but is forc'd to vent itself thro' the narrow Passage of the Nostrils, and then penetrate itself into all the six Cavities of the *Membrana Pituitaria*, and so is expell'd by the Nostrils, where it puts in Motion what is contain'd, and forcibly draws it out along with itself, and so cleanses those Passages by expelling the *Mucus* contain'd in them. A second and greater Effect of Sternutatories is, That when they operate strongly, they cleanse the Lungs at the same time. A third Effect is, To shake and put the whole Body in a violent Motion, than which nothing can be more beneficial, in hard Labours proceeding from the Weakness of the Woman, in Epilepsies, Apoplexies, and such-like drowsy Distempers, and whatever viscous Phlegm is to be attenuated, their ultimate Effect is to weaken; so that the strongest Man cannot bear repeated Sneezing, for a considerable Time, but he will find himself weaken'd; and if long continu'd, it may excite Convulsions, which will prove mortal: Whence arose the Custom of saying, *God bless you*, when we Sneeze.

PTARMICK Remedies may be comprehended under two Heads; 1st, Whatever by a pure mechanick Motion vellicates the *Membrana Pituitaria*: thus Dust raised by the Sun, and warm Wind, or Feathers apply'd to the Nostrils, or the biting of a Flea may cause Convulsions; for when the Blood becomes acrid, or an Inflammation do arise about the *Membrana Pituitaria*, which happens when the Head is stuffed, then the Nerves are vellicated or compressed, whence proceeds Sneezing. 2^{dly}, All thin Acrid render'd volatile. The whole Class of Stimulators belong hither; for all these being render'd volatile and fine, if drawn up the Nostrils will cause Sneezing; but the more acrid they are, a greater Degree of Sternutation they will excite. Betony causes a slight Sneezing, Tobacco a more violent, Pepper yet a more violent^l, then *Hellebore*, *Euphorbium*, but the greatest Sternutatory is red percipitate *Mercury*; now the tenth Part of a single Grain, if it be apply'd to the Nerve of the Nostrils, will convulse a Person; so that these last are not to be administred but by a Skilful Physician. If too violent a Stimulation be excited, let the Nostrils be diluted, or washed with sweet Milk. The ultimate Effect of these Medicines is to put the whole Body in Motion, which makes them very beneficial to *Hypochondriac* Persons.

SIALAGOGUES or Medicines drawing out Spit-
tle, are such as cause an increase of *Saliva*, from the salival Glandules, which are the *Glandulae Parotides*, *Stenones* and *Submaxillares*, which Dr. *Walton* has discover'd to have obtuse Angles, the *Glandulae Sublinguales* of *Bartholine*, the *Glandulae Palatinae* of *Snider*, which in the hinder Part are infinite, the *Tonsillae* out of which an eminent Author says, That several Pounds of thick *Mucus* do issue out in one Day. Lastly, The *Glandulae Sublinguales*, of *Mal-*

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pigius, and the *Glandula* described by *Nuck*, under the internal *Canthus* of the Eyes, I say the *Sialagogues* are such as augment Secretion of *Saliva* in these Glandules, and determine its Motion towards the Mouth.

MEDICINES which increase *Saliva* operate in a Threefold manner, 1st, by acting particularly upon Vessels; 2^{dly}, by intercepting the other Passages of the *Saliva*, and determining towards the Mouth.

3^{dly}, they operate upon the whole Mass of Liquids, by resolving the *Saliva*, and conveying it to the Mouth.

To the first Class belong all Fomentations, Frictions and Suctions external and internal; for when these are apply'd to the Glandules, they are replenished with *Saliva*.

To the second Class are reduc'd all Apophlegmatizing Medicines. It is to be observed, That the Salivation comprehended under the second Head, does not cure Distempers, but that mention'd in the third. Whence ingenious Men have been mistaken, who in their Writings say, That the *Lues Gallica* may be cured by *Masticatories*: For Salivation in the *Lues-veneræ*, doth not cure in respect of the *Saliva*, which is only accidental by Reason of the mercurial Preparations, and consequent to the Attenuation in the Liquids, on which Attenuation a Cure depends. All Persons whose Vessels are obstructed, have always moist Mouths, which may be observed in a Suppression of Urine, and in *Hypochondriac* and melancholly Persons, whose Spleen is obstructed; for 'tis a common Saying, That melancholly Person, are great Spitters. The Reason is, because the Blood retains within itself the *Lympha*, which ought to be secreted by those Passages; and this causes a greater Secretion of it in the Mouth: Therefore to this Class also belong

long such as keep the Liver, Spleen, Reins, &c. obstructed. Medicines of the third Class which operate upon the whole Mass of Liquids, are three-fold, 1st, *Antimony*, when so far fix'd by Water, as not to cause Vomiting or Purging, but only to attenuate the Blood; and then it proves an excellent Medicine in this Case. Mix one part of *Antimony* with two and an half of *Nitre*, which will make it an *Antidiaphoretick*; Let 5 Grains of it be taken every Day, it will raise a Salivation. 2^{dly}, *Crude Mercury* taken into the Body any way, either in the Nature of a Liniment, and then let it be rub'd over the Body; or in the Nature of a Fluid; thus if 10 Grains of quick *Mercury* be put on a live Coal, and rais'd into a Smoak, and receiv'd at the Mouth, will in three Days excite a Salivation; or if taken by small Quantities into the Body, as in *Pillulae barbarae*, or in Bread, will cause a slow and gentle Salivation; or lastly, if rubb'd in the Hands, it will raise a Salivation; as Operators often experience. *Mercury* will corrode thro' all Acids, and if it be apply'd to Wounds in great Quantities, 'twill excite a Salivation in three Days, which seems wonderful; and 3 Gr. of *Corrosive Mercury sublimate*, if snuff'd up the Nose, will excite a Salivation: *Crude Cinnabar*, if eaten will not promote Salivation; neither will *Ethiops Mineralis*, because their *Moleculæ* form larger Particles than can enter the Lacteal Vessels. The same may be said of Quicksilver mix'd with the most fix'd Acids, which makes a very penetrating Medicine; but the more crude *Mercury* there is added, the less it operates, and will scarce salivate. Quicksilver therefore when it enters the Mass of Blood, produces its desir'd Effect in salivating. A very small Quantity is sufficient in some Bodies. Mercurial Medicines have a twofold Force; 1st, from the Quicksilver: 2^{dly}, from the Corrosive, which being apply'd to the

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Quicksilver, is like so many *Spicula*, or sharp-pointed Bodies; and hence arise their Virtues. Consult my Treatise of *Chymistry* concerning the Properties and Treatises of *Mercury*, as to its medicinal Virtue. It is to be observ'd in the first Place, That it operates where it is chiefly apply'd; and this is where the Surfaces are augmented; for then every Globule is forc'd to dash its Surfaces into Parts, and by this means it divides and opens; but in the larger Vessels it sinks to the Bottom; where it is not divided, but coagulates; and consequently its greatest Efficacy is upon the minutest Vessels, especially about the Teeth, where there are so many minute Vessels which tend to those Solid Parts.

It is to be observ'd 2dly, That *Mercury* exerts the greater Power, the more obstructive those Bodies are it meets with; thus a few Grains of *Mercurius Dulcis* were given to a Person labouring under the *Morbus Gallicus*, which rais'd a Salivation, but afterwards he fell into the same Distemper, and the spongy Bones of his Head were affected, and then a Sweat was to be given; but because as yet Ulcers appear'd, *Mercurius Dulcis* was apply'd, but without any Effect; then *Turbith Minerale* was given him, but to no Purpose. After a Month the same Person fell into a *Leucoplegmation*, then *Mercury* slightly apply'd, caus'd a Salivation, when the Body was relax'd, and fill'd with Sudorificks. If a small Dose of *Mercury* be given in a Scurvey, or *Anasarca*, where the Vessels are obstructed, 'twill cause a Salivation.

THE third Observation is, That it is plain by the Examination of the Nature of *Mercury*, that it operates by Division; for when our Liquids and Solids are divided into minute Particles, the same Effects arise from *Mercury*: Thus if Liquids are shaken together, they will divide, and become a serous and volatile

volatile Liquid, which will send out a dreadful Stench; which Operation is purely mechanical. The same happens by Digestion and Distillation, &c. Hence *Mercury* will operate more violently, the more it is attended by a costick and acid Provocative. If *Mercury* be administred with hot Bodies, as *Dioscordium*, *Treakle*, &c. it is salivating; but if it be mix'd with cold Bodies, it is ineffectual, and will not salivate. So much for *Mercury*.

CHAP. XX.

Of Expectorating Medicines.

EXPECTORATING or Bechick Medicines are such as draw forth the distemper'd Matter which is lodg'd in the *Bronchi* of the Lungs by the *Larynx*. There are four Things requisite to effect this; 1st, It is necessary, that the Matter be render'd passable, that the Particles be not separated too much, or convey'd some other Way. 2^{dly}, That the Passages be open'd, cleans'd and lubricated, that the inherent viscous Matter may be expell'd. 3^{dly}, It is requisite that a Cough be excited; so that all Medicines which cause Coughing, may be referr'd hither. 4^{thly}, Rest must be procur'd to the *Bronchi*, whilst the distemper'd Matter is full in Motion, which is done by relaxing the Passages; by this Means the corrupted Matter is expell'd; to which End it is requisite, that an over great Stimulation, which depends upon the Parts too sensible, be remov'd, or at least asswag'd.

To the first Class are referrable all Stimulators, all Things of an acrimonious bitter Nature, and Aromaticks, as *Penyroyal*, *Wormwood*, *Hyssop*, *Carduus Benedictus*, &c. These gently provoke and

stimulate the Blood, as also do Medicines of an oily and bitter Nature; likewise sulphureous Medicines dissolv'd in Alcalies, belong to this Head; for by that Means they constitute a hot Body; hither also are reducible all Soaps, but the *Venetian* is the best; also volatile alcalized Salts, subdu'd with a thin Oyl, volatile oily Salt, and all diluting Medicines which render the Matter passable.

To the second Class belong such Medicines as open the Passages: All express'd Oyls taken in large Quantities, conduce very much to this Purpose: Farinacious Oyls, Oyl of Poppy, and Linseed, are very Relaxing and Cleansing, and are very proper to be given in a *Peripneumonia*, or *Pthipsis*: Hither belong Honey, which lubricates, cleanses and opens; all Soaps. Yolks of Eggs, Cummin subdu'd with Oyl, are excellent Medicines; Sugar, and all Things compos'd, if given in small Quantities, are attenuating, and lubricating, and cleansing; *Manna*, Balsam of Turpentine, *Elemi de Meca*, and *Lucatelli's Balsam*, which operate in the same Nature as oily Medicines mix'd with Aromatics, viz. they are relaxing and emollient. Hither also may be reduc'd Emulcents from the above-nam'd farinacious Seeds.

To the third Class belong Medicines which excite Coughing: As 1st, which operates by a moderate Stimulation, as Vinegar, Wine mix'd with Honey, or Vinegar, Oximel mix'd with Pepper, *Euphorbium* which operates by Sneezing.

THE fourth Class consists of Medicines causing Rest. Hither belong Demulcents, Anodines and Narcoticks, as are oily Medicines; but especially *Opium*. When the inward *Lamella* of the *Aspera Arteria* is excoriated, there arises a Coughing, by which the *pituitous* Matter is to be ejected. A Skillful Physician considers the Cause of their Tickling,

to be a Convulsion in the Lungs, which is best quieted by *Opium*: For when the Patient is asleep the Vessels are relaxed, and the heterogeneous Matter is gather'd into one Place, which when he wakes he discharges out of his Breast.

CHAP. XXI.

Of Medicines Purging by the Alvus.

MEDICINES which purge by the *Alvus*, are such, as being externally or internally apply'd to a living Body, expel the morbidick Matter by the *Alvus*. Now every Thing which is capable of being forc'd down into the Cavity of the Intestines from any Part of the Body whatsoever, may be expell'd and thrown off by these Medicines. I wonder that Physicians should assert, That the Matter only can be purg'd which sticks in the Intestines. Which Opinion must needs intangle them in several Difficulties. Two Sorts are contain'd in the Intestines, either Natural or Preternatural; both which are comprehended under the seven following Classes.

THE first Class consists of what is swallow'd down: Now Air may be swallow'd, and from the jumbling and mixture of this with the Liquids, they be disturb'd and render'd spumous. But for the Solution of this, Physicians have asserted, that this *Spume* arises from a Fermentation between Matter and the purgative Medecine; likewise what is contain'd in the Nostrils, in the Palate, in the Jaws and in the Mouth, may be swallow'd down; these frequently raise *Diarreha's* and *Lethargies*. *Duverney* tells us, of how large an Extension the *Membrana pituitaria* of
Snider

Snider is, which is all repeated Glandules, distilling Liquids, and if the Spittle was thrown up for the space of a Night, the Quantity will rise to twenty Ounces. And I myself knew a Person that labour'd under a Distemper which subjected him to frequent Inflammations in the Jaws, at which 3 Pounds of *Saliva* came forth in one Day. How great therefore must the Quantity of Liquids be, which are swallowed from all the forenamed Parts, not to mention the Liquid of the *Æsophagus*, which is greater than we can imagine.

THE 2d. Class comprehends the Relicks of what we eat and drink, for all Things leave their *Fæces* and Dregs behind them, except Water. Infants who feed only upon Milk, (yet gather Excrements) are a proof of this, and sick Persons who swallow down nothing but Broths yet have *Fæces*, as also are those who take nothing but Wine and Ale; whence I am of Opinion, that no Solid in the Intestines can be so dissolv'd as to enter the lacteal Vessels; how great therefore an Accumulation of *Fæces* must be Excreted out of that Duct described by *Wirsbungius* into the Intestines. A Pus in the Intestines seldom happens, and a Pus arising from Fat is not conveyed into the Intestines; but what is generally taken for it is a whitish Matter proceeding from the reliëts of Fat glu'd as it were together. Some tell us, that *Empyema*, or an Impostume in the Cavity of the Breast, may be purg'd off. But they are deceiv'd; for that which is purged flows from abscessures in the Parts already mentioned, caused by some corroding Matter communicated to the Blood by the *Empyema*; for it is not probable that it should by any other means be derived into the Intestines; sometimes the Blood flows thin, sometimes clotted in large quantities after Administrations and Purges. If thin, it notes the Rupture of some Vessel which ought to be
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be Consolidated; if clotted, it denotes some old Wound.

HYPONCONDRIACK Persons often emit coagulated Blood, like a Liver, which is generally thought to proceed from the Liver; this is improbable, because it would scarce pass thro' so narrow a Duct; but rather arises from the Stomach, which gives it its Form: for the Blood may flow in hither from all the foremention'd Parts, which have Emissaries into the Intestines. If the Liver be injur'd upon any account, and the Blood burst a Vessel, and finds a passage into the *Ductus Hepaticus*, it is infused into the Intestines, which Infusion is call'd *Dysenterie*, or Bloody-Flux. If a Medicine be given which hurts the Liver, 'twill cause this Efflux. The Ancients give an account of a Person whose Liver was injur'd, which caus'd all the Blood to flow to the Intestines. The *Pancreas* being injur'd, 'twill distill the Blood contained in it, which is occasion'd by a *Schirrus* in the *Pancreas*; let a Purge be given in this Case, for the Sanguiferous Vessels pass over the *Schirrus* and are intermingled with it; therefore if the Blood be put into too violent a Motion, it causes a Rupture of the Vessels, from their being rub'd too much against some hard stony Matter, which causes a mortal Efflux. Hence Surgeons advise, That all Things that move the Blood too much, must be withheld from Persons that labour under *Schirrus* or Cancer.

ICOR in the Lymphatick Vessels, is caused the same way as a Pus in the Arteries, which arises from the side of the Arteries, and proceeds from a broad space to a narrow; now *Icor* is a thin Liquid, into which the Lymphatick stagnated Liquid is resolved, with the resolution of the very minute Vessels. If such a Liquid happen in those Parts which have Emissaries into the Intestines, it may then be derived thence into the Intestines; the Lympha itself may
be

be secreted, for the Lymphatick Vessels are like the other Vessels, and their Juice may undergo an Efflux as well as that of the Arteries. 2ly. The Solids also may be strangely disturbed: Caruncles which are a sort of Glandules, Filaments, Tunicks and Worms contain'd in the Intestines, are comprehended under this Title of Solids, all the Vessels of the Body may be very much, as the Veins in a *Va-rix*, the Arteries in an *Anurisma*, the Lymphaticks in a *Pblistena*, and the Bones in *Osteosis*. There may be also other Causes which distend the *Choledochus* and the Pancreatick Duct; for if any hard Matter or putrid Tunicks stick in the Liver, or Pancreas, they may by these passages enter into the Intestines; this is the reason why some part of the Liver and Pancreas flows away when there happens an Inflammation in the Tunicks of the Intestines. For in a Diarrhea it often happens, that intire Filaments or Tunicks are evacuated by the *Alvus*. *Tulpius* and *Forestus* make several wonderful Observations concerning this Matter. Worms are often expelled after the same manner.

A THIRD Class also of Liquids may be derived thro' the Intestines; these Extravasated *Lympha*: It is plain that this may happen in any part of the Body when the Vessels are so full, that they cannot receive any *Lympha*. Hence arises an Aggregation, and shutting up of the Receptacle. For instance, If an Animal be opened alive in the *Abdomen*, after the Flesh has been cut from the *Thorax*.

THIS Experiment may be made in such Animals as have a transparent *Diphragme*, (as in Conies) by the Light of a Candle you may see the Lungs exactly filled the *Thorax*, and the Liquor will appear in a sound Condition. *Malpigijs* says, That the *Pleura*, *Mediastinum* and *Pericardium*, abound with infinite Glandules, which send forth this Liquid thro' the

the Excretory Vessels; therefore 'tis necessary that there should be absorbent Vessels, which may return into the Veins; otherwise the Liquid there would be collected together in large Quantities, stagnate and putrify, as happens in dead Bodies: Therefore when the Veins are too full, as *Lower* hath demonstrated, or cover'd with a Crust; or, when the Force of the Lungs impelling a Liquid into the absorbent Vessels, is too weak, then that Liquid is accumulated, which causes a Dropsy in the Breast, which extends itself to all the Vessels there: The same may happen in the Intestines, and in the Cods, &c. This Distemper is cured by increasing that Force with an extravasated Liquid into the absorbent Vessels, and thence into the Veins, which may be effected by evacuating the Vessels, whereby the Resistance in the Veins is lessen'd. Hence an ingenious Author says, That he has cur'd Tumors in the Feet, by strong and often repeated Purges. For when an acrid Stimulator operates upon the Intestines, the Glandules there situated are evacuated. And 'tis well known that upon Evacuation a larger Quantity of Blood flows towards them, because it meets with less Resistance: Thus the sanguiferous Vessels are a little empty'd by the Pressure of the *Atmosphere*; and the contractive Force of the whole Body presseth on the Tumors of the Feet; and the Vessels being thus a little evacuated, make less Resistance to the Entrance of the stagnating *Serum* these fore-cited causes being continued at last, a large Quantity of Matter is excreted thro' the intestinal Glandules.

By what has been said, it follows, That Matter of very different Natures may flow thro' the Intestines. 2^{dly}, That the Quantity of the Matter is larger than is generally imagin'd. 3^{dly}, Those Liquids which are maturely inforc'd into the Intestines

stines, may either return thro' the lacteal, or the absorbent Vessels, which, in all Probability, lead to the Meseraick Veins; otherwise there would be a frequent Obstruction in them, when the Blood is depriv'd of its Liquids, in the Glandules of the Intestines; for if these be block'd up, a large Quantity of different Humours are thrown out by the *Alvus*. Hence may arise a *Diarrhea*, which in a short time emaciates the whole Body, by exsiccating the Liquids. 4^{thly}, 'Tis to be observ'd, That by Stagnation and Permission, these three Sorts of Secretions are subjected to incredible Alterations, they are strangely chang'd by Stagnation, as we see in the *Mucus* of the Nostrils, which at first is secreted as the *Lympha* is; but after it has remain'd there some time, comes to be of a thicker Consistence, and at last becomes a solid Crust, very different from a *Mucus*. The same may happen in the Stagnation of the Bile, Blood, &c. as also when any Matter stagnates in the Intestines, and Bodies flowing to the Intestines, when mixing with other Bodies, are wonderfully chang'd; so as to leave no Similitude of what they were before: Thus if a Person drink Milk, when it descends into the Stomach, it curdles by incorporating with other Liquids, and then turns into a thin *Serum*, and Creams, very different from Curds: Thus several Liquids change their Form, and afterwards are expell'd the Intestines by purgative Medicines. Hence many wonder how such Things proceed from the Body. And this Consideration may solve several Difficulties which occur concerning the Matter of Things to be purg'd,

5^{thly}, AMONG these three Classes which consist of Things which may be purg'd, there are some which require a greater Force toward their Expelling, and others a less: As thus; if in Things swallow'd down, the adhering Matter be so thick, that
it

it cannot be forc'd into the lacteal Vessels, the *Peristaltick* Motion of the Intestines will expell it by its own natural Power: And other Things which stick in Parts more remote from the Intestines, require a greater Stimulation in the Blood; so that a purgative Medicine must be vary'd according to the Matter which is to be purg'd, and according to its situation in the Body. Now extravasated Liquids require both attractive and expulsive Medicines,

6thly, THESE different Powers of Secretions, depend upon an additional Stimulation to the circular Motion of all the Liquids; of those in particular, which are to be purg'd out. Moreover, the expulsive Faculty depends upon an increase of Celerity in the Glandules, whence Secretion must arise. Now there ought to be as many Sorts of Purgers, as there are Diversities of Matter to be purg'd, which are seven. This Problem is not easily solv'd, according to the vulgar Notion, which supposes all Purgers to enter into the Blood, and to dissolve it; for all Bodies that irritate the Glandules of the Intestines, have the same Effect upon them, as Sand, when striking upon the carneous Membrane of the Eye, *viz.* it excites a compulsive Motion, and the Eye forcibly closing itself, the *Glandula Lacrymalis* is press'd, out of which a Liquid is squeez'd, which serves to purge away the Sand, and to convey it into a Part where there is the least Resistance; which is into the *Caruncle* in the large *Canthus* of the Eye, which Part alone is not press'd by the Lidd; and by this Means the Eye is purg'd, altho' the Blood be not alter'd. The same happens in the Intestines: As for Instance; Let a Person eat Bread alone, which being dissolv'd, enters into the lacteal Vessels, and he will perceive Costiveness; but if afterwards you give the same Person coarse branny Bread, in twelve Hours time he will

will feel a Wambling in his Bowels, and the *Alvus* will be relax'd; the reason is, because the Particles of the Bran do not enter into the lacteal Vessels, but after Stagnation grow sour; hence by their Acidity they stimulate the Intestines, in the same manner as Sand does the Eye. The Generality of Writers tell us, That the Difference of Mankind in relation to a Costive, or a Laxative Constitution, depends upon this, That some Persons have the lacteal Vessels bound up, others relax'd; and that in the former the *Alvus* is easily loosen'd, but in the latter not so easily. We must suspend our Assent to this, untill it shall be plainly demonstrated of what Effect Injections are (concerning which hereafter.) Now it is falsely determin'd by some, that Purgatives must necessarily enter into the Blood and dissolve it, whereas from the Figure of their Bodies they are capable of operating the same Effect in the Intestines.

THERE are several Things requisite to Purging :
 1st, It is necessary that the Passage of the Intestines be open down to the *Anus* : this Passage is closed either by a change of Figure in the *Fistula*, or when one Part of the Intestine runs into another, or when part of the Mesentery is corrupted, or when there is a Stoppage proceeding from the *Fæces* being too much concreted, especially about the *Intestinum Cæcum*, where there is the greatest Resistance, by reason of the Valve describ'd by *Tulpius*. This very often happens to Women with Child, whose Womb compresses the Intestine, and squeezes out the most liquid Particles, the thicker remaining; and thus the *Ilium* is sometimes clos'd by a purgative Faculty; and instead of Purging, there arises Pain in the Belly, and the Matter contain'd is thrown up by Vomit. 2^{dly}, There is also a Lubricity of the Passages likewise requir'd. Now there is a Liquid
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in the Intestines secreted from the proper Glandules, which causes this Lubricity or Slipperiness, whereby the *Fæces* flow thro' the Intestines; so that the *Aptbe* for Want of this lubricating Liquid, the Virtue of Purgatives is often eluded, and the Patient is incapable of Purging or Vomiting, without first taking Oyl, Manna, Cassia, or something of that Nature. 3dly, A muscular Contraction is requir'd viz. A Contraction of the Muscles of the Stomack, and of the Fibres of the Intestines, which forces the Matter towards the Centre, and determines it towards the inferior Parts, by a *Peristaltick* Motion from the upper to the lower Parts. A Person may be purg'd, tho' this Motion be wanting, as we see in *Paraliticks*, who are often very laxative; yet it is requisite to a State of Health. 4thly, The Power of Respiration is requisite: If a Body be in Health, and at the same time some Matters stick close to the Intestine, unless Respiration be restrain'd, and a vehement Force be used, the Excrements will not go out: Hence it is impossible to disburden the *Alvus*, or to make Urine in a *Vacuum*, as is plain from Infants in the Womb, who void no Excrements for the space of nine Months, that as soon as they suck in Air, they become loose; because the Air contain'd in the *Thorax*, rarify'd by Heat, presses hard upon the *Diaphragma*, whence the *Abdomen* swells, the Muscles of the *Abdomen* contract themselves, and so the Intestines are violently compress'd, so that the Strength of the Matter contain'd, exceeds the Strength of the *Sphinkter*. 5thly, There ought to be a presence of Matter to be expell'd in the Intestines: This wants no Explaining. 6thly, It is necessary that the Matter should be passable; for some *Fæces* stick a whole Month in the Intestines, and become as hard as Wood; but if oily Glysters be given, and Food consisting only of Syrups and

Things oily, with Manna, Honey, and such-like, these hard *Fæces* may easily be forc'd out. These are the different Causes requisite to constitute, or make any Matter capable of Expulsion. From hence purgative Medicines are thought proper in particular Cases: Thus in the *Iliack Passion*, if the Patient is not affected by the strongest Purges, something must be given to move the Inflammation; viz. let Blood be largely taken away, and let *Antiphlogistick* Glysters be given with *Nitre*, and let the Patient use an *Antiphlogistick* Diet, and be bathed in a hot Bath; for if the Matter be not passable, 'tis impossible that the Person should be purg'd with *Colobinsis*, or even the most acrid *Catharticks*: But such Things ought to be given, as may make the Matter passable, and then the *Alvus* will be relax'd. The Distemper call'd the Colick, depends upon a violent Inflammation of the *Mesentery*, whence the *Alvus* is bound up. Now Physicians are generally of Opinion, That this Distemper is the same as the Colick, and administer Acrids against those Pains; but the true Cure in this Case, is to mitigate the Inflammation, as was prescrib'd in the *Iliack passion*, and then the *Alvus* will be relax'd. If Matter is deficient by reason of Crusts growing in the Intestines, which hinder the Secretion of the Liquid, or because the Matter is too much dissipated by Sweat; the Remedy is, to force Matter to the inward Parts, by taking in some cold Body, and then it will flow to the Intestines, and be expell'd. Hence it is evident how much they are mistaken, who account the Effect of all Purgers to be a Dissolution of the Blood; whereas it may easily be understood, that a Person may be purg'd without any great Alteration in the Blood.

To give you a Draught of Purgative Medicines, in relation to the difference of Matter which is
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is to be purg'd. I shall distinguish them under five Heads.

1st, *EUOPROTICKS*, which are such as force out Matter contain'd in the Intestines by the *Alvus*. These Medicines operate upon the Intestines, either by Stimulation, or from their alcalious Nature. Hence Summer-Fruits, as Goosberries, Currans, &c. are Euoproticks, as also are such Medicines, as lubricate, and open the Passages: of these Medicines a Clyster is excellent, as likewise is Oyl, Manna, and Sugar.

2^{dly}, *PHLEGMAGOGUES*, which draw out Phlegm, which is a slimy Matter, like the *Mucus* of the Nostrils: if this be thin, it is call'd *Pituita alba*; if thick, 'tis call'd *Phlegmatrivium*. This Phlegm is of three Sorts, either such Matter as resides in the Stomach and Bowels, or Matter swallow'd down, as a *Mucus*, which proceeds from a *Catarrh*, or Matter arising from a Stagnation in the Intestines. Now the Matter which resides in the Stomach and the Intestines, is either natural or morbid; the latter proceeds from glutinous Bodies compacted into one Mass or Heap, which sticks between the Foldings and Valves of the Intestines, and when expell'd, renders the Excrements *pituitous*: that is call'd natural, when by a certain Stimulation the Glandules describ'd by *Peyerius*, are express'd, and at the same time a *Mucus* of the Intestines is remov'd. 2^{dly}, Phlegm may arise from Matter swallow'd down: This need not be explain'd. 3^{dly}, It may arise from a Stagnation, or a Stoppage in the Intestines. Thus the Chyle in human Bodies will coagulate, and if Phlegm be mingled with it, it will render it transparent. See *Bonett* in his *Sepulchretum Anatomicum*; Purgatives are to be made choice of according to the Nature of that Matter which is to be expell'd. Thus if the Matter be swallow'd down, *Euoproticks* and

Phlegmagogues are only requisite ; but if it grows in the Intestines, and violently irritates the Fibres, it will stand in need of strong Medicines, such as *Hydrogogues*.

3dly, *COLOGOGUES* are said to be such as empty the Bile in the Liver, to which may be added *Melanagogues*, which evacuate black Bile, and such as is contain'd in the Spleen. According to the Ancients, *Cologogues* are such as increase a regular Secretion in the Liver, *viz.* by bringing the Bile towards the Intestines, or by expelling it after its Reception into the Intestines. *Du-Graff*, *Malpygbius* and *Nuck*, tell us of a large Quantity of Bile that flows constantly into the Intestines, altho' such are not *Cologogues* which draw forth this Bile ; for it is requisite that *Cologogue* Medicines should put the Blood into such Motion, as to cause a large Secretion of Bile in the Liver ; altho' it is very much disputed among the Moderns, Whether they are Medicines or no : Thus for Instance, if you give *Rubarb* or *Aloes*, they will tinge the Excrements with a yellow Colour, altho' the Secretion of the Bile is not at all augmented. *Emeticks* are very improperly reduc'd to *Cologogues*, altho' they often expell *Choler* by the Mouth, but they do not increase the Secretion of the Bile in the Liver, but only stimulate the Stomach, by which Means the *Vesicula fella*, or Gall-Bladder, is express'd, as we see in Persons Fasting, whose Gall-Bladder is oppress'd when they bend their Bodies, by reason of the Flexure of the *Duodenum*, the Bile ascends into the Stomach and causes Vomiting ; If the Bile flows into the Intestines, and do not flow back again into the Mesentery, it will occasion a bilious *Diarrhæa*, as happens when the Vessels of the Mesentery are stopp'd with hard Crusts or Tumours. In such a Case *Cologogues* will do no good ; for when Bile is to be excreted out

out of the Liver, strong Medicines are necessary, viz. *Hellebore*, *Mercurius vitæ*, and such-like.

4^{thly}, **HYDROGOGUES**, which are so call'd from their Effects, are such Purgers as draw forth clear Water thro' the Intestines; but neither Phlegm nor Choler. That there is such a Liquid in Bodies, no one that has seen Experiments can deny. And it is plain from what has been said before, that such Matter always resides in the Intestines, which constantly flows back again thro' the *Lacteal* Vessels, and *Meseraick* Veins. *Hydrogogues* therefore obstruct the Ob-sorption of such a Liquid, and its return into the Body; which may be effected sometimes by external Things: Thus if some Persons walk a long time in cold Air, they will be seiz'd with a Loosness, and labour under an aqueous *Diarrhæa*; but when the Body is heated with Fire, or Spirits of Wine, the Loosness stops, as *Sanctorius* observes. The Reason of this is, Because the frigid Air binds the external Parts of the Body, so that the Liquids cannot exhale, and consequently the Air has a greater Power of forcing itself into the *Lacteal* Vessels; but when the Body comes to be heated, the external Parts are relax'd, and the empty'd, or evacuated Vessels give an Ingress to the Liquid contain'd in the Intestines. Some *Hydrogogues* operate by determining the Velocity of the whole Mass of Liquids towards the Intestines; which may be effected by Stimulation, or by causing some Obstruction in the Vessels; such are Costicks, or Mercurial Preparations, *thimalus*, &c. which operate by increasing the Velocity of the Liquids. This is evident from a manifestation of Urine in Persons who take such Medicines.

5^{thly}, **MELANOGOGUES**, this is the most difficult Class of all, and was by the Ancients accounted one of the chiefest the *Atra bilis* of the Ancients, was Matter emitted by the *Alvus* of a black Colour,

consisting of different Sorts of Acrimony, of different Smell and Tenuity. That such Matter I confess ; attends most Diseases, but I cannot well determine, whether it is properly call'd Bile, or no. The Ancients were of Opinion, That this Bile was never wanting in Melancholy Distempers ; Melancholy Persons are the same as Splenetick, viz. Such as have a large Spleen ; Now the Blood in Splenetick Persons is black. This is evident to any one that examines it ; so that Splenetick Persons must very much abound in black Blood. If the Blood of the Spleen, as the Ancients thought, flows into the Intestines, it must necessarily flow thro' the *Vena Splenica* into the Liver, and then into a Branch of the *Vena Portæ*. Now if the Blood stagnates by the Tumefaction of the Spleen, as has been said before, it may be put in Motion by a strong Stimulator, by *Catharticks*, *Emeticks*, or an immoderate Dose of Wine, by which Means it will flow into the Liver, burst thro' the Vessels, and so be convey'd into the Intestines, and be secreted. Medicines of this Nature ought to be the most violent of all ; Nay, real Costicks, which may operate upon the Muscles of the *Abdomen* and *Diaphragma* ; so that the Spleen may be very vehemently compress'd between them. Now this black Choler may be expell'd either from the Liver when it is stopp'd, or from the *Pancreas*, or from the Intestines when they emit Blood, which being mix'd with the Phlegm of the Intestines, constitutes a black Blood ; and such Blood is often voided in the beginning of acute Distempers, as *Hippocrates* tells us ; which is a very bad Symptom, because it denotes that some are consum'd. Sometimes extraordinary Force is not requisite to purge away black Choler ; for the gentlest and slightest Purge will sometimes disturb the same Matter, as well as the strongest ; whence it may be concluded,

concluded, That Practical Physicians are often mistaken, when they prescribe general Rules concerning this Matter.

CONCERNING the Operation of Purgative Medicines, the following Things are to be observ'd; 1st, Certain purgative Medicines must be given which are not capable of entering into the *Lacteal* Vessels; such a Medicine is Cream of Tartar, which requires a greater Degree of Heat than that of our Bodies, to make it flow into the *Lacteal* Vessels. This has been experimented.

2^{dly}, SOME Purgatives before their Operation, cause Anxiety and Nauseousness, Vomiting and Fainting. Whence it is evident, that such Medicines enter into the Blood. Now Cream of Tartar carries none of these Effects with it; therefore it doth not enter into the Blood. It is evident from thence, that some Persons have determin'd falsely in this Matter, in asserting, That all Purgatives operate by dissolving the Blood.

3^{dly}, ALL Purgatives by increasing only the Dose, prove Emetick: Thus Oyl of Olives, which is the gentlest of Purgers, and operates only by Lubrication, if taken in a large Quantity, excites Vomiting; how much more forcibly then must strong Purgatives operate? As the Salt of any Metal concentrated with Acids, Cryстал of *Luna*, *Mercury*, &c. Juice of *Euphorbium*, especially of that which is white, of *Typhimalus*; so that we cannot determine but by the Dose, whether Medicines will prove Purgative, or Emetick.

4^{tly}, THE Passions of the Mind have the Power of disturbing the *Alvus* both upwards and downwards, and cause the same Effects as Purges: Thus in Anger and extream Fear, the *Alvus* is very much relax'd: 1st, Lothings arise, and Wambling in the Belly; and then the most liquid Parts are

evacuated; The Sight of any loathsome Thing will have the same Effect: Thus Children who have once taken certain Medicines, will go to stool at the very Sight of them.

5thly, SEVERAL Persons are purg'd by Smell only; tho' Diseases may afterwards deprive them of this. The *Parisian Acts* for the first Year, give us an Account, that certain Persons fell into Purgings and Vomitings, by being brought into a Room strew'd with Rose-Leaves, after they had been there some little Time. Concerning this Matter, consult *Boyle* in his Treatise of *Effluvia*. The same likewise happens sometimes from the Sense of Seeing. See *Bartholine*, and other Curious Observers.

6thly, By the Application alone of something external to a Wound, the Person receives within himself a purgative Faculty, which may prove mortal, if too far exerted. The *German Ephemerides* gives an Account of a young Man, who had a Ring-worm, to which he apply'd *Crocus Metallorum*, which put him to great Torment, and afterwards caus'd him to vomit excessively. There are some Persons, who by taking *Mercury* inwardly cannot be put into a Salivation; but if it be apply'd to the Feet, the Salivation will easily arise: So if you anoint a Child's Navel with *Unguentum de Artanita*, and cover it with a Cloth, within three Hours the Child will be so tormented, and violently purg'd, that there will be reason to fear he will fall into a *Hypercatarrhis*; whence some Physicians have condemn'd the Use of it; but the Purgation may be stop'd by injecting Oyl into the Navel. Now it is probable, that all these Things are convey'd into the Blood, and then into the Part on which they operate.

7thly, MANY are very violently purg'd by the Hindrance only of the *Sanctorian* Perspiration; as when they walk in a foggy Air, or with their Feet cold;

cold; hence arise Pains in the *Alvus*, and at last Looseness. This happens only in a foggy Air, and not when it rains; for *Hydrostaticks* demonstrate, that in Rain the Air is dry, and not moist. It is also evident, that double-threaded Wooll hung up in the Air in the Time of Rain, the Weight does not increase as in a Fog. Thus *Hippocrates* was of the Opinion, That the *Zephyrus* or West-Wind, which is moist, causes Loosenesses. *Sanctorius* only gives a Reason for this. *Derlingcourt* used to walk bare-Foot on Stones, which presently caus'd him to purge; and he always did so instead of *Physick*. All this informs us, that by the Alteration only of the Flux of the Liquids thro' the Vessels, a Purgation may arise; as also by the sole Motion of the Body in a Coach, or in a Ship. Hence follows,

Corol. 1. ONLY a small Body is requisite to the highest Effect of Purgation, as the foregoing Stories inform us; for the thousandth part of a Grain of a Rose, being apply'd to the *Olfactory* Nerve, will affect it. See *Boyle*.

Corol. 2. THIS Body ought to be very thin and fine, as is evident, especially from the 6th Observation.

Corol. 3. THIS Body also ought to be very volatile; thus a Pound of *Aloes* laid open in a Paper, will purge some Men, but if the *Aloes* hath evaporated overmuch, it becomes ineffectual, the same is true of *Euphorbium* and *Sena*.

Corol. 4. THE minutest Particles of any Medicine are the most Purgative: Indeed we term the *Coloquintida* to be the most purgative; but if we make an Effusion of it, only one half part dissolves, which contains all its purging Vertues: Thus all purging Rosins, if laid open to the Air for a Month, lose all their purging Powers, excepting only, according to the Opinion of the Ancients, *Elaterium*, whose

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whose purging Vertues are not destroy'd for 100 Years; but I believe this wants to be confirm'd by Experiments. Thus I have given a general Description of Purgative Medicines, and have divided them into five Classes: Now I shall give a particular Account of them severally.

CHAP. XXII.

Of Purgative Euoproticks:

EUOPROTICKS constitute the first Class of Purgers, which are such Medicines as simply and of themselves force out Matter contain'd in the Intestines, without much Disturbance to the Patient; yet no Body is so specifically *Euoprotick* as not to stimulate in some small Degree: Thus Water ejected into the Eye will vellicate the Parts. These Medicines operate after a Threefold manner, 1st, By lubricating the Membrane of the Intestines, or the Matter contain'd in them; or 2^{dly}, By diluting or attenuating it; or 3^{dly}, By stimulating the contractile Fibres of the Intestines.

LUBRICATING *Euoproticks* comprehend, 1st, Fresh Oyls from all Animals: We say fresh, for if they are kept a long time, they become acrid and corrosive, and prove violent Purgers. Hither belong 1st, The several Sorts of Butter, which consists of the fat and thick Particles of the Chyle, separated from the acrid and aqueous Particles.

2^{dly}, ALL fat Broths from Animals: The Parts about the Mesentery decocted, are particularly recommended by the *Italians*, as excellent in conquering a costive Habit of Body, in Melancholy and Hypochondriack Persons, who are hard to be purg'd.

purg'd. 3dly, Cream of fresh Milk. 4tly, Marrow, and the marrowy Parts: If Persons who never go to stool without great Pain, would eat these, the *Alvus* would be very much relax'd. 5tly, The Bile of Animals, which attenuates the *Fæces*, cleanses and irritates the Fibres. Several Children have sometimes in the *Colon* a Substance growing as hard as Wood, whence many Evils do arise. Now in this Case, if you give a violent Purge, they become worse, and sometimes fall into a Flux. The best Remedy are the Galls of Eels, above all others, which lubricate the Intestines, and stimulate by reason of the Salt which is inherent in the Bile. 2dly, Express'd Oyls of Vegetables, fresh and mature; for if they are immature, they are rather restraining, and if kept long, become acrid. These Medicines have the same Effect as the former, being all of a mild and gentle Nature. Therefore if Persons who are of a costive Nature, will take in a Morning Oyl of Olives or Linseed, they will find the *Alvus* wonderfully relax'd. Now there is a great Query, Whether Oyl be laxative or restraining. I say sometimes it binds, sometimes 'tis relaxing, for in a Dysentery it astringes, because it will obtund, and blunt the acrid Particles from whence the Gripping and Looseness proceeded; but in *Hypocondriack* Persons (who have the Surface of the Intestines dry, and the *Fæces* hard,) Oyl is relaxing.

3dly, RIPE sweet Fruits belong hither, as Figs, Almonds, Pistack-Nutts, Linseed, and all farinaceous Decoctions which are emollient: all these are very grateful to the Belly, and if eaten in the Morning, lubricates the *Alvus*: they are very much applauded in *Italy*, and are taken when the Body is bound, for the Head-ach proceeding from them. *Hippocrates* commends these to *Hypocondriacks*.

4tly,

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4^{thly}, SAPONATIOUS Juices, especially of mature Vegetables, as the six following; 1st, Manna. 2^{dly}, Cassia. 3^{dly}, Honey. 4^{thly}, Sugar. 5^{thly}, Syrrups from these, and 6^{thly}, Hydromel which is very much recommended by Hippocrates, and is a Compound of Honey and Water.

5^{thly}, ARTIFICIAL Soaps which consist, 1st, of an express'd Oyl, and fix'd Salt; 2^{dly}, of a distill'd Oyl, and fix'd Salt; 3^{dly}, from all Vegetables and Oyls. Another Class of Artificial Soaps, consists of an Acid mix'd with an Oyl; thus Spirit of Salt or Oyl of Vitriol, decocted with any other Oyl, will make a lubricating Soap.

6^{thly}, All the former Medicines apply'd externally in Ointments: thus in *Italy* when the *Alvus* is bound, they bathe the Loyns and *Abdomen* with the Oyl of a certain Stone, by which means 'tis easily disburden'd.

ALL the preceeding Medicines injected in the Form of Glysters: For if the Valves below the *Serum* become dry, all Things taken at the Mouth signify nothing, for their Strength is gone before they reach the Part affected; whereas Glysters restore that Humidity, and Lubricity which is wanting: this is confirm'd by the Examples of the *Italians* in curing *Hypocondriack* Distempers. Hence follow these practical *Corollaries*.

Corol. 1. THE Use of all the forementioned Lubricators, is in dry, hot, melancholy Bodies, which are subject to the Piles and inclin'd to a violent *Sanctorian* Perspiration: These are generally such Persons as have very robust *Viscera*, and inhabit very hot Countries, for the Surface of the Intestines becomes dry, and the *Fæces* are hardened, in Persons who have very strong *Viscera*, or Bowels, because the Liquids are forc'd into the *lacteal* Vessels, where they mix with the Blood, and are attenuated, so as to fly off by

by Perspiration, whilst the *Fæces* remain hardened, and so pass into the *Colon*. All these Persons are subject to melancholy and the *Hæmorrhoides*, and appear of a dark Complexion, because the Blood is depriv'd of his most liquid Particles, and the *Fæces* stick hard in the *Colon*, were being accumulated they press hard upon the *Rectum*, and so upon the Veins which convey the Blood back, whence the Blood is stopped and accumulated, untill it fall into Swellings called *Hæmorrhoidal*, which are either open or conceal'd. The only cure for this Distemper is to relax the Passages.

Corol. 2. THE Use of these Lubricators in purging some Constitutions, is infinitely more beneficial than the strongest Medicines, as *Hydrogues*, and such like: For if strong Purgers be given to a Person of a dry Constitution, they put him to violent Pains, and Uneasiness, and will excite Sweat and sometimes Vomiting, but no Purging: The Reason is, because the Virtue of strong Purgers consists in a volatile, which presently flies off: Therefore if it be taken in a dry Body, it presently penetrates thro', it causes Anxieties, and passes away by Perspiration: So that I say in Cold Countries, strong Purgers are generally best, but in Hot only Lubricators must be given.

Corol. 3. THE *Alvus* being relaxed by these Medicines, is never bound up afterwards: This must follow necessarily, for no Purgative ought to force any Thing downward, but what is contained in the Intestines: Now strong Medicines exhaust Persons of the foresaid Constitution, so that none of the very liquid Particles remain in the Intestines, on which Account the *Alvus* is after astringed for some time, and they find themselves worse; whereas if the *Alvus* be relax'd by lubricating Medicines, it keeps on its Motion.

Corol.

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Corol. 4. The properest Course of Lubricators is, when a hardned *Fæx* sticks in the *Colon*. Nature informs us a hardned *Fæx* is not to be found in healthy Persons, above that Gut call'd *Sæcum*, (I am not now speaking of that Disease called *Illeus*) so that the Fault lies in the *Colon*: In this Case, Purgatives given by the Mouth are ineffectual, and one Ounce of Soap is much more beneficial being injected in the Nature of a Glyster. We know that the Excrements of the *Fœtus*, often stick like a Clot of Blood; now in this Case if a strong Medicine be given, it will excite a violent Motion and Convulsion, but will not penetrate as far as the *Colon* where the Distemper lies; but if the *Fæces* are put in Motion by any other lubricating Medicine, they are in a short time happily excreted.

Corol. 5. HENCE we may understand what the Nature of laxative Medicines is.

Corol. 6. THESE Medicines are prejudicial to all cholerick, laxative Persons, and such as are bound with an aqueous Bile, whereby too large a Quantity of Bile is convey'd towards the Intestines, and by the Strength of the *Viscera*, is brought back again and is forced towards the inferior Parts. Persons are laxative when the *Fibres* of the Intestines and Stomach are too slippery, and too much extended: The Reason of this arises from the Assumption of too many oily and saponatious Bodies. The Use of relaxing Medicines is hurtful to these Persons, and to such whose Blood contains abundance of acrid Particles, and those that want the *Sanctorian* Perspiration, who ought to be purg'd with violent Medicines, and such as will quickly perform the desired Effect.

THE second Class of *Euoprotick* Medicines, comprehends Diluters which cur, separate, and put into Motion the *Fæces* which stick close together, with
such

such Gentleness as not to disturb the rest of the Body, yet effectually expell them : There are five Classes of these Medicines.

1st Class, FOUNTAIN and Rain-Water : If Water drank that it may have an Effect upon the Intestines, it is requisite that it be drank in a Morning, and in the open Air. Sweats must be avoided, but a gentle Perambulation must be used to make them flow towards the Intestines. Whosoever useth them after this manner, will be purg'd.

THE 2^d Class consists of Mineral or Medicinal Waters, which operate by diluting, and the *Aqua Acidula* of the Spaw, or Semi-Mercurial Waters, and the *Aqua Granenses*, *Smalvacenses*, which contain a Vitriol, and Sulphurious Waters as those of Great Britain generally are : These are to be drank in the same manner, as I mentiond before. They must be kept as much as possible from the inward Parts, otherwise they become astringent, and indanger Life.

3^{dly}, THE Water proceeding from Animals, which is an excellent Diluter, as fresh Milk or Cream drank in the Morning in the open Air : For Milk and Cream are Emollients, but if the Patient move too much, they prove Diureticks, and by a still greater Motion, Sudorifick : The same Effect, Broths made of the Flesh of Animals have, and all Things compounded of Milk.

4^{thly}, ALL Decoctions of emollient Herbs, as of Colworts, Mallows, Linseed, &c. For they descend towards the Intestines, relax and dilute ; but if they excite Sweat, they are very prejudicial.

THE 5th Class contains Fomentations made of the preceeding Medicines : Let the Body be bath'd with these : By these Fomentations several have been cured of Obstructions in the *Alvus*, for they enter into and dilute all the inward Parts ; they may be given either in Glysters or Fomentations, if Baths are

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are wanting. Hence may be deduc'd these Corollaries.

Corol. 1. THESE Medicines are beneficial to such Constitutions, as are named *Corol. 1.* of the first Head, and they are very hurtful to laxative Persons, and especially to such as abound in aqueous Humours, and it is evident how much they are mistaken, who are of Opinion that Mineral Waters are injurious to *Hypochondriack* Persons.

Corol. 2. THESE Medicines are excellent, and almost divine in scorching Fevers, and inflammatory Diseases, either given at the Mouth, or in Glysters, or in external Bathings. *Hippocrates* is of Opinion, That the best Method of Cure is, to relax the *Alvus* with these Medicines.

THE Third Class of *Euoproticks* consists of Stimulators, which are such Medicines as contain in themselves a certain Acrimony, and operate so effectually upon indigestive Stomachs, and Intestines, as to force the *Villi*, or small Hairs into expulsive Motions, that the *Fæces* may be expelled, without disturbing the other Parts of the Body. In these Medicines, Acrimony is requisite, which depends upon their being apply'd with the fewest Points. There is likewise such a Thickness requisite, as to hinder them to enter into the *Lactæal* Vessels, and it is necessary that they should be determined towards the Intestines: Thus if you give sour Cream in warm Milk to any one, it will prove Diaphoretick. And if he walk much after it, Diuretick; but if he walk gently and in open Air, it is carried toward the Intestines, and there stimulates and subdues the *Alvus*.

To this Class belong all Things taken from Animals, and 1st, From their acrid Juices: Thus in the first Place the Urine of all Animals is purgative: After drinking, if Persons would walk a little

Dung of Peacocks, Pigeons, &c. Consult *Chymistry* of the Origin of *Nitre*. Hither belong the Juices extracted from the Excrements of such Animals as feed upon Vegetables only; as the Juice of the Dung of Horses, which eat only Grass, is very relaxing in a Plurisy, Small-Pox, and acute Distempers. The *Italians* commend the Juice of Excrements given in Clysters for loosening the *Alvus*; but to take a Decoction of them by the Mouth, is better.

THE second Class consists of Vegetables: And first of their Juices; we may easily perceive what a great Virtue there is in all seasonable Fruits, if taken in great Quantities, whether Ripe or not, sour or sweet; for they all contain some thick Particles which stimulate, and flatulent Particles which irritate: Now their Virtue does not depend upon any Acrimony in their Nature, as from an acid Acrimony or any other. Hither belong Oranges, Pears, Citrons and Lemons, and such like: Hither also Quinces may be reduc'd, which are sharp and good in a Looseness, for they stimulate and purge. Hence it is evident, That all these Things contain something acrid in them, which is apply'd to the Intestines successively: They are very excellent to be eaten in hot Weather, and Persons who do not eat them, fall into acute Diseases. 2dly, The Juices of these Fruits express'd, which are called *Robor*, but by the Ancients *Defrutum*, these stimulate and exonerate the *Alvus*. 3dly, The indissolvable Parts of these Fruits, which when contain'd in the Stomach contract an acrid Sort of Acidity, 1st, If any one eat Bran, 'twill purge him. Thus the Skins of Cherries and Currans are not dissolv'd in the Ventricle, but when they stick in the Stomach are raised into certain volatile, acrid Bodies, which stimulate and purge. Hither belong Flowers bruised
and

and made into a Conserve, as Violets and white Roses, which purge likewise by their acrimonious Nature; as likewise will one Ounce of Conserve of Peach-Flowers. 4^{thly}, Natural vegetable Soaps, Honey, Sugar and Manna, dissolv'd in Water, the thickened Juices of Ripe boil'd Fruits, as *Tamarinds*, *Cassia*, &c. See the fourth Class of Lubricators. These are very good Cleansers, which is the Reason they are used in Wounds. Soap likewise is a very great Cleanser, but Aloes, if given to one Grain, is very excellent in relaxing the primary Passages, in lubricating and stimulating; its scarce more effectual if given to one Drachm, but only excites the *Tenesmus* without Purging. Hither belong Gums, also acrid Aromaticks, and ferulaceous Plants, such as *Ammoniack*, whose Smell is very grateful to *Hysterick* and *Hypochondriack* Persons; *Ammoniack* is a very good Medicine in relaxing the *Alvus*, given to 4, 5, or 6 Ounces, and if apply'd to the Skin, attracts watery Humors to it. Hither belong *Bdellium*, *Opoponax*, *Sagapen*, *Galbanum*, *Mirr*, all these Gums contain a viscid Matter, wherein is inherent something very volatile and acrid; so that in their Passage thro' the Intestines, they emit *Spicula*, which stimulate and expell the thicker Contents, and lubricate, and corroborate at the same Time: Hence they are divine, and the only excellent Remedies in a *Leucoplegmata*, *Cacochymia*, and chronical Distempers. 5^{thly}, Salt which disturbs the *Alvus*, altho' they are generally neglected, and thought to be only Diuretick, or Sudorifick. All fix'd Salts of Vegetables called natural, operate after this manner. These Salts proceed either from the crude or fermentated Juices of Vegetables. From the crude Juices arise nitrous Salts (consult *Chymistry* concerning their Production) which stimulate lightly, and disturb the *Alvus*; by Fermentations are produc'd

those Salts called Tartarous, which are *Euoprotick*, as Cream of *Tartar*, &c. these Salts are to be dissolv'd in a large Quantity of boyling Water, and in the strongest Alcaly to make them capable of entering into the *lacteal* Vessels. And hence we conclude, That *Tartar* does not enter into the *lacteal* Vessels; because there is no such Alcaly to be found in human Bodies. Rhenish *Tartar* is the best of all, the next to this is the *French*, the *Spanish* is not so good: It may be taken from two to four Drachms in Broth, there is no better *Euoprotick* than this in Nature. 6^{thly}, Fix'd acrid Salts, which are clearer than the other, *viz.* Such as are produc'd by Fire; for all Plants that are, if burn'd in Vessels that are shut close, and dissolv'd into volatile Particles, which pass away just like Smoke, (which consists of an Oyl and volatile Salt, and is Purgative) into a black Coal which contain some Oyl in it, and afterward the Oyl being consum'd by the Heat, it becomes the Salt of *Tachenius*, which retains the Nature of the Plant that it was extracted from; one or two Drachms of which Salt, being taken in a Morning, if you walk gently after it in the open Air, will loosen the *Alvus*; 7^{thly}, Fossile natural Salts, as Sea-Salt, &c. if given to two or three Drachms dissolv'd in Water, and taken as before mention'd, disturbs the *Alvus*, if apply'd with a greater Heat proves Diuretick, if with a still greater Heat, as with warm Milk, becomes Sudorifick: one Drachm of *Sal Armoniack*, is likewise Sudorifick; and *Nitre* given to 1 Drachm mix'd in a large Quantity of Water, *Borax* also and *Allum* given to 1 Drachm becomes Purgative; *Vitriol* given to 4, 5, or 6 Grains will purge; a Scruple of it will excite Vomiting. 8^{thly}, All hard acute and undigested Bodies, which have a kind of Acrimony in them, as almost all Particles from

from rasped Metals; as the Filings of Steel. 1 Drachm of Antimony is Diaphoretick; and 3 Ounces of it is good for scabby Hoggs: Likewise the Kernels of all Vegetables, as Grapes, &c. and Plants well boyld are Purgative, as Endive, Spinage, &c. the minute Bones of small Fish will have the same Effect. 9thly, Things mix'd, as Soaps. All these foremention'd Things may be given at the Mouth, or in Clysters, or by Fumigation. Thus the Smoak of black Tobacco is an excellent Clyster, especially if 5 Grains of *Colequintida* are mix'd with a Drachm of Tobacco, this Medicine will operate in one Moment, when nothing else will do. Hence this Medicine is very beneficial to *Hypocondriack* Persons. From what has been said these *Corollaries* follow.

Corol. 1. THESE Medicines are hurtful, or beneficial to the same Constitutions, as were cited in the foregoing *Corollaries*.

Corol. 2. ALL nitrous and tartareous Salts are proper in Flammatory Diseases; especially the Juices of seasonable Fruits: They may be given till the *Alvus* has been relax'd two or three Times. Cream of *Tartar*, and Crystal of *Tartar* belong to these.

Corol. 3. ALL these Medicines are proper where the *Colon* is stuffed up, especially to tall and lean Women, whose *Abdomen* is generally bound up after Delivery, and heaps as it were are accumulated thro' the whole upper Tract of the *Colon*, which is call'd *Placenta*; this often ends in a Consumption, and is attended with several dreadfull Symptoms. The Cause of this Distemper is, that when they were big with Child, the *Uterus* compressing the Intestines, squeez'd out the most liquid Particles of the *Fæces*, the thick Particles remaining. Now strong Purgers given to such Persons will excite Vomiting, and the *Hysterick Passion*,

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but the Application of Lubricating and Relaxing Medicines, especially by Fomentations and Clysters, are very beneficial; and afterward you may give gentle Diluters and Stimulators at the Mouth; The same is true of such Students as lead a Sedentary Life, and certain Artificers, and Melancholy Persons; for in these the lower Parts being violently press'd by much Sitting, strong Purges are very hurtful, nay, sometimes fatal; whereas the fore-mention'd Medicines will yield a happy Cure.

C H A P. XXIII.

Of Medicines Purging Flegme.

ARE such as draw forth Flegme thro' the *Alvus*, whether sticking in the *Oesophagus* or the Intestines: These Medicines are known by disturbing Flegme, which is a viscous Matter like the *Mucus* that is blown out of the Nostrils in the Morning. The Flegme which is extracted from the Intestines, is threefold.

1st. FROM slimy Matter undigested. 2^{dly}, From the Weakness of the Vessels. This Weakness is threefold, and proceeds either from the contractile Motion of the *Viscera*, or from the Stagnation of those Liquids which are diluted in healthy Persons. Such Liquids are the *Pancreatick* Juice, and especially the Bile. Another causes Secreion in the Intestines. Now all our Liquids, when first secreted, are aqueous; yet certain Particles which may be coagulated for want of Motion, I except only Urine, they all lose their Liquid Particles by Heat: Hence in violent Fevers all our liquid Particles become viscid; hence

hence after Distempers Flegme is rather the Effect of a Disease, than the Cause of Stagnation; for the *Viscera* being weak, the Liquids stick between the Foldings of the Intestines, and the thinner Part flies off, and is remov'd; and hence arises what is call'd *Pituita vitrea*.

PHLEGMAGOGUES are twofold: 1st, Such as draw out the pre-existing Flegme into the Intestines, and are separated from the very Blood like *Lympha*, or whatsoever moves the Vessels to which it sticks. Now an increase of Heat and Motion in the *Viscera*, is a great Help toward the loosening Flegme; which is evident from several Experiments. But we know of no *Menstruums* so strong as to dissolve it; contrary to the Opinion of the Chymists.

To the first Class belong such as dissolve viscous Matter. As 1st, Warm Water, either drank or injected like a Clyster, or exhibited in external Fomentations; and the drinking warm Water is very excellent, especially if you walk gently after it in the open Air, that so they may be convey'd down to the Intestines; but cold Water will not dissolve Flegme.

THE Use of Water is also very good, if mix'd with saponaceous Things; and if a Potion of this Nature be taken warm, it is an excellent Dissolver, and operates sooner than Water alone; Sugar and Water (if heated) is a great Dissolver; altho' 'tis commonly suppos'd to generate Flegme; *Manna* and *Cassia* mix'd with Water is very good; common *Venetian-Soap*, also *Phepharon*, *Sal volatile Oleosum*; all these are very diluting, if drank hot and carried down towards the Intestines, will loosen Flegme.

3^{dly}, GUMS which are saponaceous viscid Bodies, and are at the same time acrid, and dissolvable in Water; such are *Aloes*, *Myrrh*, *Gum-Amoniack*, *Assa-*

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fetida, *Bdellium*, *Opoponax*, *Turpentine*, *Sagapen*; if these Things are soak'd in warm Water, they much sooner dissolve than in cold.

4^{thly}, WATER mix'd with all Salts, except very strong acid Salts.

THE other Class of *Pblegmagogues*, operate by exciting the intestinal Fibres into Motion; such are all Acrids, not too volatile, but so thick that the Particles cannot fly off by the Heat of the Intestines; Thus *Cantharides* being apply'd to the Skin have no Effect; but when they are mix'd with any viscid Body, and then apply'd, will operate, because their active Particles are restrain'd back, and reflected on the Skin. Hither may be referr'd all Things mention'd in the first Head, if they are a little more violent, as Honey mix'd with a little Allum; this will cause Gripings, which is a Sign the Intestines are put in Motion.

2^{dly}, OXIMEL, than which there is no better Medicine for cutting Flegme: for the Viscidity of the Honey retains the acrid Particles of the Vinegar. Oximel compounded with other Things, is an excellent Medicine; but now-a-days much neglected.

3^{dly}, AN Elixir of Pepper, is a Medicine of this Kind, if it be given sodden in Honey.

4^{thly}, MERCURIAL Medicines: Thus only 4 or 5 Grains of *Mercury* dulcify'd in a cold Body, is an excellent *Pblegmagogue*, especially if the Person walk after it; the twentieth Part of a Grain of the Spirit of *Mercury*, or *Antimonial* Medicines, made up into Bread, so that they may not cause Vomiting; finally, all *Emeticks* and *Sudorificks* are purgative, if taken in smaller Doses.

PHLEMGAGOGUES sold in Shops, are such as contain in themselves a hidden acrid, volatile, thin, and fine Matter, yet so thick that it may not fly off.

off. Among these are 1st, reckon'd *Agarick*, which is the chief of all, whose largest Dose for Men is 12 Grains, and the smallest two; if it be decocted in Water, and its Juice squeez'd out, the Dose may be doubled to 24 Grains; if it be dissolv'd in Spirit of Wine, it appears like *Sperma-Ceti*, its Dose is then 1 Ounce. An Extract may be separated from it, altho' those Authors who have treated concerning this Extract, seem not to understand the Matter. If you put the viscid Part of into your Mouth, it will yield a Liquid, and after a long *Mastication*, will become sour. 2^{dly}, The Seeds of *Carthamus*, gather'd when they are dry, the smaller Dose is 1 Scruple, the larger 3 Drachms; if it be decocted in Water, the Dose may be three times as large, and the same Quantity will operate better so, than Spirit of Wine. If the thick Juice be express'd, it purges Flegme; 'tis of a bitter Taste, that causes *Flatulæ* and Gripings, so that *Cardamon* or *Cinnamon*, or such-like Things are given with it.

3^{dly}, *COLOQUINTIDA*, which is a Sort of Cucumber, and its Fruit being dry'd, is resolv'd into a thick Pulp: 'Tis of a viscid Nature, and the most violent Bitter that we know of; the lesser Dose is $\frac{1}{4}$ of a Grain, the larger 1 \oslash ; but this last is a terrible Dose. Now the Effect of *Coloquintida*, is to disturb the *Alvus* with the greatest Pain and Torment; its Matter is like Aloes, dissolv'd and thicken'd with *Arabian Gum*. The best Method of making a *Menstruum* of it, is to dissolve it in Water, which if it does not exhale, yields a Juice, which being filtrated, is not inferior in Vertue to the very Substance, and does not cause such violent Pains: If it be dissolv'd in Spirit of Wine, it is very beneficial to Bodies abounding in *Hydropical*, *Pituitous*, and cold Humours; if it be seeth'd in the Spirit of Wine, a Rosin of a golden Colour is extracted from it.

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The smallest Dose of the Rosin is the 4th Part of a Grain; the largest is 8 or 10 Grains.

4thly, A Plant which being prick'd with a Needle, distills a white Juice which burns the Tongue, which Taste cannot be driven away; the largest Dose is 12 Grains; if it be given in too large Quantities, it extracts Blood instead of Flegme, tho' it may be dissolv'd in Water, but then its Taste is intolerable, and exulcerates the Mouth; it may be corrected with Vinegar, but then its Vertue is lost; by Spirit of Wine its Particles are render'd acrid and volitrary, the earthy Part being left behind; whence it proves a very virulent Body: Its Dose is 3 Grains.

5thly, HERMODACTILUS, which is a Gummy Mastick Root, which yields a viscous *Saliva*, and Bitterness; a small Dose is 10 Grains, a large Dose is 2 Drachms; if it be sodden in Water, you may double the Dose; if in a Dephlegmation of Wine, a Body perfectly rosinous is extracted from it; in common Wine it yields an Extract, which may be given in the same Quantiry as in the Substance.

6thly, JALAP is accounted the best Purger in Nature; it is an admirable *Indian* Root: If it be tasted, the whole Mouth is cover'd with a viscous Flegme; and if it be kept still in the Mouth, that and the Throat appears exulcerated, nor can this be remedy'd but by drinking Vinegar: The small Dose is 8 Grains for Children that has Worms, the largest Dose is 5 Scruples; it is very good if an acid Humour does not reside in the Stomack or Intestines; but if it does, then it is ineffectual, for all its Vertue is lost in any Thing sharp. It may be decocted in Water, and then the Doses must be doubled. If in Wine, it yields an Extract which purges admirably, as an Eminent Author takes notice. You may take 9 Grains of the Extract, and soak it in 2 Ounces of Wine,

Wine, and so make a Tincture, and sweeten it with Sugar. Now the Rosin will not operate alone; for if it be given as a Pill, it returns just as it went in; but dissolv'd in Water and Sugar proves effectual.

MECHOACAN is a Root of the same Nature, but milder than Jalap, a small Dose is 8 Grains, the larger 13, it is prepared after the same manner, and has the same Virtues as Jalap.

8^{thly}, CERTAIN Pruins are referrable hither, which are called *Mirabolani*, they have a sharp bitter Taste. There are several Sorts of them, the lesser Dose is 2, the larger 3; they purge pituitous Humours, but afterwards bind up the *Alvus*, the Names of these *Mirabolani*, are *Indi*, *Curini*, *Embleci*, *Chebuli* and *Bellerici*.

9^{thly}, AROMATICK scetid Gums, the larger Dose is 5 \mathfrak{z} , the lesser 15 Grains; these have always a Matter like a *Mucus* of the Nostrils, they can scarce be dissolv'd in Water but very easy in Yolks of Eggs, Honey and Sugar; they are dissolv'd in Wine, they cause great Pain in their Operation. A moderate Dose is sufficient with the Yolks of Eggs, because by that Means their Strength is increased.

10^{thly}, TURBITH *Gummosum*, which is of a viscus Nature, the lesser Dose is 10 Grains, the larger is 23, 'tis reduc'd into a saline Extract, by being dissolv'd in Wine or *Alcohol* of Wine.

11^{thly}, MERCURIAL Medicines, especially *Mercurius Dulcis*, broken into Pieces, but not reduc'd into Powder; for then it will excite Salivation; the lesser Dose is two Grains, the largest is two \mathfrak{z} .

12^{thly}, THE Moderns add Aloes and Manna, nor without Reason do they mention Aloes, as a Loosner of Flegme: This Dose is 2 Grains, the largest

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largest 1 3, nor does one 3 operate more effectually then 2 Grains, because then it enters into the *Lacteal* Vessels and promotes Perspiration: As for *Manna*, it is very cleansing.

13thly, *BRIONY* also may be referr'd hither; 'tis a thick fungous Root, and extills a thick pituitous Matter, and if tasted burns terribly, and the Taste will remain several Days and Weeks: the least Dose is 2 Grains, the largest half a 3, it expells thick Flegme, and a violent Vomiting succeeds the taking of it; if dissolv'd in Water or Ale, it tasteth intolerably; in an Extract of Wine it yields a *Fæces*, which purges if given in half the Quantity as before; and is the best Remedy when Womens Wombs are stuffed with a viscous Flegme.

IN the 14th Place *Polipodium* of the Oak may hitherto be referr'd: 'Tis to be observ'd, That all these may be dissolv'd in three *Menstruums*, either in Water or Wine, or in *Alcohol* of Wine.

1st, LET Water be pour'd on, which will extract their saline Principle, so that if the Salt which is extracted has a purgative Faculty, Water is a proper *Menstruum*.

2dly, AFTER the Water is pour'd out, let Wine be added to the *Fæces*, which will extract some what more, but not the whole Virtue; therefore let this Solution be pour'd out, and 3dly, Let *Alcohol* be added to the remaining *Fæces*, which will proceed farther, and extract a Rosin; now if these three Extractions are put together, you have the intire purging Virtues of any Plant, and the Effect which remains is only a dull Earth.

Corol. I. THE Medicines before describ'd are beneficial, and necessary to all Persons whose primary *Viscera* are weak, which are the Organs of Chylifica-

Chylification, as the Mouth of the Muscles, the *Diaphragma*, and the Heart from whence the Blood is forc'd: for if these are weak, the Food lies undissolv'd in the Intestines; or if dissolv'd, concretes again for Want of Motion. To know what Distempers arise from this Cause, Recourse must be had to Practice.

Corol. 2. THE Use of *Pblegmagogues* is necessary in every Distemper where there is a fault in Chylification, proceeding from want of Motion in the Bile; the Vertue of the Bile is to attenuate the Acidity of the Food. This is evident both from Theory and Practice; for such Persons whose Bile doth flow into the Intestines, or if it moves too slow, in short time becomes flegmatick, and in such Cases no Medicines are more proper than the above-mentioned, if given in small Doses; which by frequent repetition attenuate and loosen Flegme, and increase Motion by stimulating the Parts. Such Diseases proceed from cold and viscous Humours, which are owing to want of Motion in the *Menstrua*, and *Viscera*, as Dropsies, Leucophlegmatie, Jaundice, Greensicknesses; and such-like Distempers, arising from Obstructions.

Corol. 3. THE Use of *Pblegmagogues* is very conducive to Persons who are pale all over their Bodies, and whose *Saliva* Pancreatick and Salival Juice is viscid: Now all Paleness in the Chyle is lost by its frequent passing thro' the Body and Lungs, and its Redness depends from a Compaction of Particles, which proceed from the Motion of the Heart, and Resistance of the Vessels. Thus if the Strength of the Heart fail, and the Vessels become too much relaxed, the redness of the Chyle is lost; as likewise if the Blood be exposed to open Air; so that in all Distempers where there is too great a Degree of Paleness, we may be sure the Vessels are too much

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much relax'd, and that the Liquids can scarce pass thro' the Heart ; and consequently the Force of the Sollids upon the Fluids must be but dull, and in such Cases by using *Pblegmagogues*, the Colour is restored. Thus Medicines which are Cutting, Resolving and Diluting, will recover the lost Colour of Girls in the Green-sickness. *Pblegmagogues* are also proper to Persons who continually flow with a slimy Matter ; for by these the Stomach throws up the Flegme, and the *Alvus* is relaxed. No Medicines are more convenient than these to Persons whose *Abdomen* swells as tho' they were Dropsical, which proceeds from want of Digestion. Now it is a Mistake that volatile Salts are good in this Case, for in reallity their Virtue is soon dissipated by reason of the Heat of the Body, and only excites Belchings.

Corol. 4. No Medicines can be properer than *Pblegmagogues*, to such as lead a Sedentary Life, and feed much on coarse Bread, as Prisoners. Now it is plain from the Theory of *Physick*, that Respiration ought to be reckon'd among the Causes of Chilification: Thus we see Oxen and Horses when they stand long in Stables in the Winter-Season, often die by too much redundancy of Flegme: In such Cases the Motions of the Intestines ought to be increased, by giving a stimulating *Pblegmagogue*.

Corol. 5. THE best Method of Curing of Diseases of this Nature, that I know of, is thus; 1st. Let the Patient take of such Medicines as are dissolving, whether they be Saline, Gummous, Saponatious, or Alcalious; but the use of these Medicines are to be continued for some Days; afterwards let some *Pblegmagogue*, proper to his Case, be given; to which you may add a little *Mercurius Dulcis*. This Method is good in the most desperate Cases; as for Example, Let one or two Grains of *Venetian-Soap* made up

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up in a Pill, be given for some Days, let the Patient take Salt of *Tartar* ten Drops, *per Deliquium*, every Hour, in *Spanish Wine*, tho' you may give 5 Grains of *Venetian-Soap* if required. If after the Use of these Medicines, the Urine appears redder than ordinary, 'tis a Sign that the Flegme is cut, and then you may give 5 Grains of Aloes in Pills, and the next Day one Grain of *Euphorbium*; and let this Method be continued for three Weeks. Thus Distempers of this Kind, tho' Chronical, may be cur'd.

CHAP. XXIV.

Of Medicines Purging Choler.

THE Cystick Bile distinguishes itself by its Yellow Colour, Resplendency, Thickness and Bitterness, from every other Liquid in our Body. If this Bile, when extracted by the *Alvus*, hath the above-mention'd Marks, it is a *Cologogue*, and from these Signs appearing in the Excrements, the Ancients gave it its Name; and when the *Bilis Hepatica* came out, they call'd it a *Pblemagogue* but since the Bitterness is seldom or never tasted, its Nature cannot depend on that, but only on Yellowness, Tenacity and Resplendency, all which may be the Effect of Flegme, or of Alterations of our Bodies within us. Hence all Medicines which consist of these Things, ought not to be call'd *Cologogues*. Now they accounted Scammony the chiefest of the *Cologogues*; but if the extracted *Fex* be examin'd, no such Yellowness appears, but only a shining *Lympha*. Hence arises a Confusion between *Pblemagogues* and *Cologogues*.

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gogues. Whatsoever has the Virtue of the Phlegmagogue, and at the same time consisted of a Yellow Colour, and was of so thick a Nature, as not to be able to enter into the *Lactéal* Vessels, the Ancients accounted it a *Cologogue*, as if it ting'd the Urine with its own Colour, as *Rhubarb*, *Aloes*, *Mirabolans*, *Cassia*, &c. This Doctrine of the Ancients is all trifling; for Medicines which extract Bile from the Liver, operate either by a peculiar Faculty, whereby they enter into the *Mesenterick* Veins, and there dissolve the Blood, or by increasing the Blood in the *Mesenterick* Veins, whence they convey their Liquid with greater Force toward the Liver; whence the Bile is excreted in larger Abundance, and is carry'd into the Intestines with greater Force.

MEDICINES of this Nature increase a convulsive Motion in the Muscles of the *Abdomen* and *Diaphragma*. Violent Medicines have the same Force, especially those made of *Antimony*, which dissolve the Blood two Ways, either by operating all over the Body, or upon only one particular Place: Thus if we apply *Cantbarides*, there immediately arises an Alteration in the whole Body; and moreover, as soon as it comes to the Reins, it causes a Solution of Blood and *Mucus*, whence the Urine becomes bloody: Thus if we had any thing that would operate in this manner upon the Liver, it would be a *Cologogue*. Now these *Cologogue* Medicines, ought to be very mild and gentle, and not stimulate much, because they ought not to communicate their Force thro' the Arterious Blood; for the Secretory Vessels of the Liver are not of the same Nature with it; and because they receive their Blood from the Arms, would lose their Force before they come to the Liver; and this is the Reason that it is so hard to find out the true *Hepatick* Medicines; and one
may

may sooner cure Chronical Distempers, than Diseases from the Liver. However, there are two Sorts of Medicines that are to be commend- ed in this Case.

1st, SUCH as are of the same Nature as the Bile itself. As the Bile is the greatest Resolver in the whole Body; so the greatest Solution is ne- cessary in the *Mesenterick* Veins, because the Blood is there the thickest. Now the Bile is of an Aro- matick, Saponatious Nature, and *Cologogue* Medi- cines ought to be also Saponatious; as Aloes, Cassia, Manna, Sugar, Rhubarb, the Juice of Roses, which are all fat glutinous Bodies; yet may be dissolv'd in Water. These remove Obstructions in the Liver, and cure the Jaundies. Hence *Hippocrates* advises the constant eating of Honey in a Jaundies. 2^{dly}, Com- pounded Saponacious Things, which also are two- fold: 1st, Soaps themselves, compos'd of Alca- lious Salts and Oyl; of which there are six Sorts; the most searching and penetrating of all, is made of an alcalious volatile Salt and Oyl. 2^{dly}, An Elixir of Pepper; which is very good for a Jaun- dies that is not attended with an Inflammation; Sy- rup of Sichory, of Rue, and of the Five-Roots, and the Juice of Violets, which are very much recom- mended by the *French* and *Spanish* Physicians; you may add a little Honey to them; all these mingled with the Blood, dissolve it, and increase its Mo- tion. And if Diseases of the Liver are curable, it may be done by these Medicines.

THE second Sort add Strength to the whole Body, and increase Motion in the Muscles of the *Abdomen*, by violently compressing it. Antimonial Medicines have this Effect, and all Vomitories, especially *Mercurius Dulcis*, and *Assarum*; which, ac- cording to the Ancients, purge the Bile both up- wards and downwards.

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Corol. I. PRACTICAL Cologogue Medicines, are requisite only in such Diseases, where the Blood of the Liver must be dissolv'd, and its Motion increas'd, or its Liquids must be secreted into the Liver, and convey'd into the Intestines. All Distempers of this Kind proceed from Obstructions of the Liver, sometimes without any Inflammation; for if they are attended with a Fever, the Disease is augmented, and the Liver is inflam'd. Therefore if a Fever accompanies the Jaundies, the Patient must abstain from Saponatious Things. If the excretory Vessels want Motion, there arises a Jaundies; as also if a little Stone stick in the *Ductus Communis*, that will cause a Jaundies, attended with violent Vomings. These Distempers happen often to studious Persons, who use not much Motion, especially if they lie long in Bed. The best Method of Cure is this; Give every Day, and almost every Hour, Pills made of *Venetian*, or rather *Scirian-Soap*, or a little Aloes mix'd with Honey, which is call'd *Hierapicra*, in a small Dose, or *Sal Poluchreston*, with a little Honey, or 10 Drops of Elixir of Pepper; you may add to these a Smegma of Rheum; and after every Dose, let the Patient take a thin Drink, into which you may put Sugar, Honey, or Syrup of Violets, and a strict Diet must be observ'd for four or five Months; for the space of a Month or two is necessary to prepare the Blood in order to its being dissolv'd; and about that time the Colour of the Urine and Excrements will be chang'd, and the Skin will look red: When these Symptoms appear, give Emeticks, which may strongly expel the loosen'd Matter. You may give a Grain or two of *Mercurius Vita*, or $1\frac{2}{3}$ of *Vinum Emeticum*; and afterwards you may give Opiats; and so the Patient must accustom himself gradually to substantial Meats and Exercises. A Distemper which
arises

arises from Defect of Bile, must be cured by giving such Things as may easily be dissolv'd; as *Ptyſan*, Yolks of Eggs, &c. with Pills of Soap.

CHAP. XXV.

Medicines which Purge Watry Humours.

THE *Serum* is twofold, either as concretes with Water, and may be cut, or that which exhales at the Fire, and is call'd *Serum Saliviosum*: *Hydrogogues* have two Effects: 1st, They augment a Secretion of *Serum* in the Intestines. Hence after the taking those Medicines, a vast Quantity of *Serum* is evacuated. 2^{dly}, They cause the *Serum* to be directly carry'd to the *Anus*, and hinder it from being absorb'd of the *Lacteal* Vessels, and *Meſeriack* Veins.

A SECRETION of the *Serum* may be promoted three Ways. 1st, By stimulating the Secretory of the Intestines. 2^{dly}, By dissolving the Blood into Particles not red, by putting it in Motion, and by determining the Motion towards the Intestines. 3^{dly}, By Medicines that shall have both these Effects at the same time. The 1st, Class of *Hydrogogues* consists of such Medicines as being apply'd to the Intestinal Fibres, move the Emissaries there, as Vinegar does in the Eyes, or a Feather in the Nostrils. The 2^d, Class, are like *Vesicatories*, which being apply'd to the Intestines, raise Blisters in their primary Membrane, dissolve the Blood, and cause the *Serum* to flow into the Intestines, which will not coagulate with Water; hence all blistering, costick, and acrid Medicines, are taken in at the Mouth, and should stick in the Cavities of the Intestines, and

if they are of a thicker Nature, to enter into the *Lacteal Vessels*, will prove *Hydrogogues*. 1st, The Root *Mexican*, is a *Hydrogogue* of this Sort, and its Vertues are like those of Jalap. Being distill'd in Spirit of Wine, it causes a Salivation from the Mouth and Jaws. The Rosin which is extracted from the Spirit, being thickned, is an excellent Cleanser in Wounds. If it be taken in a larger Dose than what we prescrib'd in the Chapter of *Pblegmagogues*, viz. to two 3, it proves one of the best of *Hydrogogues* in a Dropsy.

2^{dly}, TINCTURE of Jalap, a larger Dose being given than was prescrib'd in the Chapter of *Hydrogogues*, becomes an excellent *Hydrogogue*. Its chiefest Vertue lies in the Rosin. 3^{dly}, *Ebulus* (or Dwarf-Elder) you may give of the Seed from 1 3 to 3 3: of the Juice 2 3; of the Bark bruis'd, to Children, 1 3; it is a good Purger of Water, and if decocted in Water, and given in a double Quantity, has the same Effect. It must not be given in Wine, but in *Alcohol*. 4^{thly}, *Rhamnus Catharticus* is an excellent Purger of watry Humours; especially the Juice of the Berries. The Juice from the Berries, not too ripe, and made into a Syrup, which is call'd Syrup of Buckthorn, is very good against a Dropsy: Its Dose is two 3. 5^{thly}, *Soldanella*, a Sea-Herb, of the same Nature as *Convolvulum*, it may be taken in Substance with Vinegar the Quantity of an 3; it draws out watry Humours admirably; the *Hollanders* use it frequently. 6^{thly}, *Gratiola* (or *gratia Dei*) so call'd, because there is no Medicine comparable to it in Purging watry Humours. It is given from 1 3 to 3 3; but it ought to be used with Caution, because it is of a very fiery and viscous Nature. 7^{thly}, *Iris Palustris*, hath the same Vertues as the fore-mention'd Medicines; but it must be cautiously used; because it will excite Gripings in the

the Bowels, and inflames the Mouth a whole Day, and if it touches the Lips, it makes them look as tho' they were poyson'd. They are cured by Vinegar. 8tly, *Tithymalus* is a very much approv'd *Hydrogogue*. It may be decocted in Whey, to which you may add a little Honey. *Martin Rulandus*, an Emperick, cured several Dropsies with this Medicine. 'Tis given from 3 to 8 Grains; but it ought to be administred by a skilful Hand. 9tly, *Sydenham* advises to have recourse to *Elaterium* in a Dropsy, and recommends it as a Refuge in desperate Cases; 'tis the Juice of a wild Cucumber, and its Taste is more acrid than *Coloquintida*. Its Dose is from 1 Grain to 12; tho' no prudent Physician will give so much. 10tly, *Gutta Gamba*; it may be given from 1 Grain to 12; it violently disturbs Water: They say, 'tis a Sort of *Euphorbium*, which distills from a Plant. 11tly, *Mercurius Dulcis*, from 10 Grains to two 3, roughly pounded, and apply'd to Wounds, extracts the *Lympha*; and there is no better Medicine for callous, or spongy Flesh; but if it be beaten fine, it salivates. Corrosive Spirit of Mercury, from the 12th part of 1 to 2 gr. precipitate, red Mercury, or *Turbish Minerale*, which *Paracelsus* substituted in its Room. This *Turbish* is an excellent *Hydrogogue* in Fistula's and hard Tumours; yet it hath this Disadvantage, that it operates violently, and sometimes excites a *Dysentery* in a *Gonorrhoea*. 12tly, Almost all Crystals; as for Instance, of Silver, exulcerate the Stomack and Intestines, whence they purge Persons that be purg'd by no other Means. They may be given from the 6th part of a Grain to 1 Grain. One Grain of Vitriol of Brass, or 1 Scruple of Vitriol of Steel, may be taken fasting. All these operate only from their acrimonious Nature, and not from any specifick Qualities inherent in them; as is evident from the

very acrid burning Taste which they leave upon the Tongue when chew'd, from the Blisters which they raise in the Skin, and from the Pain which they excite in green Wounds; and finally, from the Chymical Resolutions of their Particles.

THE second Class of *Hydrogogues* comprehends such Medicines as operate by dissolving the Blood. That these Medicines enter into the Blood, may be prov'd three Ways. 1st, From Injections; for Experiments made in *Italy, England, &c.* inform us, That an Hour after the Injection of *Crocus Metallorum*, the Pulse in the Veins is heightn'd, the Blood is dissolv'd, and the Liquid is evacuated by the *Alvus*. 2^{dly}, These Medicines being apply'd externally, will cause a *Diarrhœa* consisting of *Serum*, which is often fatal. Thus Quick-silver apply'd to the Feet, in order to raise a Salivation, hath caus'd a *Diarrhœa* accompany'd with great Pains, which prove mortal. 3^{dly}, The Cure of all Flowings of the *Serum* must be by Purges, by Diaphoreticks and Theriacal Medicines, whereas a little Spirit of Wine will cure a *Diarrhœa*. Hence we see that these Medicines being apply'd to the intestinal Vessels, produce Secrecion. Now we have very few Medicines which promote this Secrecion, except only Mercurials given in small Doses, and often repeated, especially by the Patients walking in open Air. *Mercurius Dulcis* is the best Remedy, and works its Effect in two or three Days, in a Flux of serous Liquid by the *Alvus*. *Cantbarides* is the most searching and penetrating Medicine to expel watery Humors: For in the Space of six Hours after their Application, the Skin will be fill'd with Blisters, and if given inwardly in a large Dose, secrete abundance of Blood.

Corol. I. ALL these Medicines are proper, to Bodies which abound with a saline *Lympha*, and
in

in Diseases where the *Viscera* are weak and stuffed up: By Weakness is understood only a lesser contractile Force, of the Heart and Arteries: In Persons whose *Viscera* are weak, and whose Limbs are not exercis'd, the Blood is very dilute, as in Pthysical Persons. Now these Medicines stimulate the primary Passages and *Viscera*.

Corol. 2. THESE Medicines are proper, where Things of a similar Nature have been extravasated, or where the Liquids are vitiated in Acrimony or Quantity. Therefore in all Bruises, and in all inflammatory Swellings, they are also beneficial, where the Humors remain without the Vessels, where the Solids are injur'd, or the Liquids acrid.

Corol. 3. THE Use of *Hydrogogues* seems to be most beneficial in such Distempers, where it is necessary to cause an immediate Solution in the internal Liquid: As *Sydenham* first observes, *Hydrogogues* are capable of drawing out the whole Mass of Blood, into a salivous Mass. They are very proper in Fistulas, Ulcers and Scabyness; for in such Cases the Vessels are destroy'd, and the Liquids are extravasated, and in all Sorts of Dropsies where the Vessels are stuffed up, or extravasated Liquids prevail; as also in a Palsie, which is thought to be a Paradox. But you may learn from *Sydenham* and other eminent Authors, That these Medicines are very proper in this Case, for they are in an extraordinary Manner stimulating, resolving, and at the same time evacuating. How particularly useful these Medicines are in a *Gonorrhæa*, manifold Experience informs us.

Corol. 4. WHENEVER we make use of these Medicines, we ought first to give a large Quantity of Salt, otherwise they will cause great Uneasiness in the Body.

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Corol. 5. THESE Medicines are hurtfull in all Inflammations in the Arteries, *Lymphatick* Vessels and Nerves; whence in acute Distempers they presently become mortal; but if there happen to be an Inflammation, and these Medicines must be administred, *Pblebotomy* ought to be used. As to Inflammations of the Nerves, I understand the Distempers of hysterical Persons; and if any of these Medicines are administred in any of these Distempers, they quite exhaust the Patients Strength.

Corol. 6. ALL *Hydrogogues* will easily produce a *Hypercatarrhis*, which is Twofold, and proceeds either from too violent Purgations, whence the Vessels become as it were *Paralytick*, and the whole Body is exhausted; Or otherwise, 'tis *Spasmodick*, which arises from the Vessels being too much stimulated; whence follow Convulsions. The Remedy in these Cases are spirituous Things, and Astringents, as *Opium* which stops all Fluxes.

C H A P. XXVI.

Of Medicine^s Purging Melancholy.

SUCH Medicines are call'd *Melanagogues*, which purge out black Choler by the *Alvus*. The Ancients divid'd it into two Sorts, either that which breeds in the Spleen, or in the Liver. That of the Spleen they call a *Fex*, or Recrement of the Blood. That of the Liver proceeds from yellow Bile render'd more acrid and corrosive. They call'd these *Melanagogues* which expell'd such a Humour from the Spleen, and this may be done by the Liver.

I ASSERT

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I ASSERT in the first Place, That both in Health and Sickneſs a black *Fex* is emitted both upwards and downwards; in Health, as in new-born Children, and then this black *Fex* is call'd *Meconium*, and alſo in Children more robuſt; and then it proceeds from a *Mucus* the Child ſwallows down, and ariſes from its *Saliva Pancreatica*, and inteſtinal Juice. 2dly, All Perſons who have ſtrong *Viſcera*, and who perſpire violently, if they travel out of a Cold Country into a Hot, their Excrements are often turn'd very black. 3dly, From eating and drinking certain Things. Thus *Florence Wine* which is thick and black, will tinge the Excrements with its Colour. And Beef, or Pork dry'd and hardened with Smoak produce ſuch Excrements, as alſo do Medicines which conſiſt of crude Iron, and a diſſolv'd Acid. Now in the Beginning of moſt Diſtempers, as well acute as chronical, a natural *Fex* is generally evacuated both upward and downward; which according to the Ancients ariſes from four Cauſes; 1ſt, From certain Medicines. 2dly, From the Recrement of the Blood. 3dly, From too great an Accumulation, or Sharpneſs of Excrements. And 4thly, When the Excrements after they are become black, are forc'd into the Liver, and deſtroy its Function: This is properly call'd *Atra bilis*.

POLIPODIUM of the Oak is accounted the chief of *Melanagogues*: It gently Purges, and colours the Excrements black; it is alſo a *Pblegmagogue*, but when it tinges the Excrements with a black Colour, it is called a *Malanagogue*, as alſo is the Lazour Stone, (or *Lapis Lazuli*) theſe Medicines carry Arſenick in them, and excite dreadful Vomiting. All *Maſſicatories* excite black Bile, and colour the Excrements.

BLACK

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BLACK Bile is threefold. 1st, When an acrid or acid, or when an alcalious or *farid* Taste, as of a rotten Carcass, or when a Saline or Sulphurious Taste is in the Blood; 2^{dly}, when Sulphurious Alcolies are mix'd with Acids. Hence may arise Particles both acid and thin at the same Time; Now if such happen to be in the Blood, they are capable of injuring the Vessel, and cause Apoplexies in aged and *Hypochondriack* Persons. Hence Madness properly ariseth; if these Humors are carry'd to certain Parts of the Brain, they cause *Delirium's* accompany'd with Madness: If it floweth to the Lungs, there arises *Hæmoptysis*; if they flow into the Intestines, they cause a *Dysentery*; if to the Skin, they produce a settling in the Blood, and cause the worst of Ulcers. 3^{dly}, These thick Particles stagnate in no Part of the Body sooner, than in the *Abdomen*, where they stick in the *Coelia*, and in the Branches of the Reins, and are very hard to be secreted at the Sides, whence something viscous is left remaining about those Parts, and the *Hypochondria*, which stagnating, causes a Putrefaction, which happens in no Part of the Body, more than in the Blood. If this Matter is convey'd into the Blood, about the *Viscera* of the *Abdomen*, it will pass into the Veins. Now those *Viscera* are the Spleen, *Pancreas*, Part of the Liver, *Mesentery*, and the *Omentum* in the Ventricle: Now if the *Viscera* have no Passage out, they are corrupted in the *Abdomen*, and will cause a Dropsy, with a Rupture of some of the *Viscera*, which are accumulated in the Cavity of the *Abdomen*, when the Bile either fills or bursts the *Ductum Colidocæ*, and makes towards the Intestines, whence it is expell'd both upwards and downwards, or else it is convey'd to the Glandules of the Skin, and there produces Spots, and corrodes: If this
happen,

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happen, the Humour may be expell'd by *Melanogogues*. 1st, This often happens naturally, by Concoction, as in those Ejections at the Mouth and *Anus*, to which melancholy Persons are sometimes Subject; 2^{dly}, such Medicines are to be given, as fret and corrode the Parts where there is the greatest Resistance; 3^{dly}, you may give all resolving Medicines; as 1st, such as cut the Matter; 2^{dly}, such as dilute it; and 3^{dly}, such as stimulate the Vessels; 4^{thly}, there is some Virtue of this kind in Things not natural: Thus Cold will force a Liquid into the Intestines by driving it from the exterior Parts of the Body, and the Passions of the Mind will cause Vomiting.

ACTIUS in his *Tetralogia Medica*, in Page 46. says, That not all black Humors, which are evacuated by the *Alvus*, belong to this *Atra bilis*, but that it is a thick stagnated and coagulated Blood. *Sapa* tells us, That in Chronical Distempers, the *Atra bilis* flows to the *Alvus*, and there causes griping and convulsive Pains, as in the Pains of the Liver, in Book I. Chap. v. Of Chronical Diseases. *Ephesius* an eminent Physician, calls it a thick Recrement in the Blood. *Egineta* says, That Beef, thick and red Wine, produce thick Bile. *Hippocrates* says, That black Blood, and the *Fex* of the Blood is not black Bile. Medicines purging Melancholy, or *Melanogogues* of the first Class, are of two Sorts; the 1st, are such as stimulate the Vessels, gently and slowly, and render the Excrements black; such are *Mirobalan's*, wild Prunes or Sloes, which are of a very acrid Nature, from 1 Scruple to 1 Drachm: They purge slowly, but effectually; if soak'd in Water, they retain a black Colour. The 2^d Sort consists of such as yield a black Colour, unless they meet with any Alcalý, as *Senna*, *Epithemum* is an acrid Corroder, and is a Sort of Moss, may be given to
5 Grains:

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5 Grains: *Polypodium* of the Oak, which is a very severe Purge, and if infus'd yeilds a black Colour, and may be given from 2 Drachms to 1 Ounce; it purges Melancholy if mix'd with Vitriol of Steel; the Dose is to 2 Grains. These Medicines disturb violently, and are very destructive to the *Alvus*; for they operate commonly by an *Arsenical* Power. Medicines compounded of Copper or Costicks.

Now Copper is an excellent Vomiter. The 10th Part of a Grain dissolv'd in a proper Vehicle, is sufficient.

SUCH Medicines are, 1. The *Lapis Armenius*, which powder'd, is an excellent Medicine; may be given to 2 $\frac{1}{2}$ 3, in Substance it is hurtful by reason of its Violence. 2dly, The *Lazer-Stone*, which in Substance is a dreadful Poyson, and corrodes the Intestines and Stomack; but when levigated into a Powder, and given to 6 or 7 Grains, purges the *Alvus*; if given to 1 3, is an excellent Costick for the Ulcers of Cattle. If you put it into your Mouth, you will find it to be of a fiery Taste. Other Medicines of this Nature excite Convulsions in the Stomack, and also in the Intestines.

THE first Rule to be observ'd in prescribing *Melanagogues*, is, To enquire into the Nature of the predominant Matter, Whether it be an acid or alcalious, muriatick or sulphureous Acid? which latter stinks like Oyl when burnt, and causes Thirst and Heat; an aromatick Acid, may be reduc'd to a sulphureous one.

RULE 2d, You must administer Medicines contrary to the prevailing Humour: Thus if an Alcaly prevails, you may give some gentle Acid, which must be constantly repeated, and the Body must be put in a moderate Motion. Thus some Persons prescribe every half Hour, to take Cream
of

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of Tartar a Month-or two, whereby all the predominant Humours remove, or 3 or 4 Drops of Salt of Tartar every Hour for several Days, whence the acid Humour is enervated. Water mix'd with a little Honey, given in small Quantities, and often repeated, is very good in a muriatick Acid, or 1 Drachm of the above-mention'd Medicines given in Water.

RULE 3d, If Sulphur predominate, you may give Salt and Vinegar, which is an antiquated Medicine, and exulcerates the Mouth. The Patient must drink something after it to move the Body gently. Now this Sulphur seldom shews itself without an Alcaly; but as often as it predominates, it also has its Symptoms, as Thirst, Sweat, &c. therefore a Physician ought to enquire, 1st, Into the Nature of the prevailing Humour by the Symptoms. 2dly, When he knows this, he ought to administer Medicines of a contrary Nature: Thus against Alcalies, he must give such Medicines as are capable of obtunding or blunting the Alcaly; so that the Acid and Alcaly may be chang'd into a mix'd Salt; but if a saline Acid is predominant, you may give seasonable Fruits, or sharp sour Herbs. The Dutch-Men generally take *Sinapium* mix'd with Vinegar. Hot Things are hurtful, if an oily or alcalious Acid is predominant; saponatious Things alone are capable of enervating its Force, as Honey mix'd with Vinegar. Hence the Ancients are so lavish in praising their Oximel. 'Tis to be given in very small Quantities. Now in the first Place, 'tis necessary that we should know the Symptoms, for the Solution of any peccant Humour. 1st, A Nauseousness generally attends it. 2dly, A *Cardiagmus*, or a Pain in the Breast about the Orifice of the Stomack. 3dly, A frequent Vomiting of Acid Matter. 4thly, A violent *Diarrhæa*. 5thly, An unequal Pulse,

Pulse, arising from the convulsive Motion of the Nerves, which is a Sign that Matter is ready to be expell'd. 6tly, Swoonings. Let not this terrify; for the Patient may easily be recover'd by specifick Cordials; of which Nature are saline, oily Medicines. All imaginable Care must be taken, least the Moving should cease, and lest the offending Matter be in Motion too soon; for if it falls upon the Liver, it may soon cause a Gangrene.

THEREFORE Purgative *Euproticks* are to be given as soon as these Symptoms appear: Thus when the Matter is alcalious, *Rob* of Gooseberries may be taken, or a Decoction of Apples, with Crystal of Tartar and sour Whey. These must be given till the *Alous* be put in Motion; Cherries alone when squeez'd, will purge this Matter, as also Crystal of Tartar, or *Venetian-Soap*; as also *Rhenish-Wine*, and the Juice of Summer-Fruits are very good: When an Acid Matter prevails, Broths, Spirit of Wine, and volatile Oyl of Salts are given. By this Method Diseases which seem incurable, have been healed. Thus *Delirium's* of the longest Date, this acrid Bile being extracted from the Body, have been cured: Thus *Hippocrates* cured *Democritus*. 2dly, Melancholy Persons are cured by this Means, who abound with acrid Humours, tho' the Distemper be inveterate. This Method is likewise beneficial in that Madness which happens to Melancholy Persons every Spring and *Autumn*; and to such Persons as labour under a *Quartan* and *Sextan* Ague, altho' of several Years standing; by this Means Scurveys and Gouts are cured, and Ulcers, otherwise incurable; Dropsies proceeding from acrid Humours; Consumptions, and the most inveterate Piles, which can never be cured by Astringents, and Stiptick Medicines.

Theorem,

Theorem 1. THE Matter of which this Bile is compos'd intirely, is viscid acrid, and corrosive and unfit for Circulation: It differs from Colour, Viscidity and Acrimony: Its Stay in the Body turns all the Liquids of our Bodies into an acrid Nature.

Theorem 2. By violent Motion our Liquids become Acrid: Thus the Bones if put in violent Motion will send out a *fetid* Smell; and Melancholy and Scorbutick Persons being agitated with violent Motion, fall into terrible Vomiting, Looseness, &c.

Theorem 3. PERSONS who find Stoppage in the *Viscera*, become worse by Heat, as in the Dog-days, at which Time that Distemper generally call'd Choler arises, and when an acrid Bile is evacuated by Stool and Vomiting. Now Diluters are very good in this Case, and Opium.

Theorem 4. By the Passion of the Mind, which none are so violently afflicted with as *Hypochondriack* Persons and *Hysterical* Women, now all inflammatory Distempers either immediately kill, or are presently remov'd, but if they fall upon a Body over-run with black Bile, they cause Anxieties about the Heart, a Lax, and Vomiting, all which depend upon some preexisting Matter.

Theorem 5. ALL violent Evacuations, which happen when any Matter in a Channel is of a conick Figure, and they are not capable of being resolv'd externally, and it is necessary that the Passage from behind should be relax'd, and the Obstruction driven backward; for violent Evacuations from behind subdue the oppressing Matter; and when a Quantity of Liquid is diminish'd behind, 'tis driven inward and resolv'd; and as often as a general Evacuation of any Liquid happens, the tenacious Particles are resolv'd, and then the acrid Bile
issues

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issues forth after a violent Evacuation, of which Death ensues, according to the Opinion of *Hippocrates*.

Theorem 6. MEDICINES which stimulate violently, if given in the fore-mention'd Cases, draw out the Bile too much, and generally prove Mortal.

Theorem 7. THIS Matter discovers itself by his black Colour, and sends forth an intolerable Stench, like putrify'd Flesh, which is a Cause of Death, for it excites violent Convulsions in the *Viscera*, and is as it were Fermentative.

Theorem 8. WHEN this Matter is thus excited, it affects all the Nerves with its Vapour, and disturbs all the Parts; when receiv'd within the absorbent Vessels, especially the Brain, and when it is loosened, great Part of it mingles with the Liver and other *Viscera*, whence the whole Animal OEconomy is destroy'd.

HERODOTUS tells us, That when this Matter is put in too violent a Motion, *Cardiacks*, Pains, Palsies, Vertigoes, Cold Sweats, Lowness of Pulse, Vomiting, Gangrenes and *Sphacelus's* arise, which in short Time prove fatal. *Duretus* observes, That in such Cases a very prudent Physician ought to be consulted; now a Dropsy does generally follow such immoderate Evacuation of the Bile; the acid Sort of Bile is less dangerous, because then the Humors of our Bodies do not so easily become acid as alkalious. Acid Belchings demonstrate, that the Matter may be sooner cur'd.

THIS Matter may, 1st, be cur'd by diluting it, 2^{dly}, by cleansing it with *Saponations* Medicines of a different Nature, which remove the putrid Relicks; 3^{dly}, by correcting it: Thus an Acid will correct an Alcali, & *vice versa*; 4^{thly}, by asswaging it so, that the *Spasmodick* Motions become not too violent, which are cured only by *Opium* given with Diluters.

Now

Now if the Matter contain'd be put into violent Motion, the whole Vessels are presently corroded; whereupon the sick Person soon dies, his Illness being attended with a Fever; for when the Matter begins to be mov'd, there arise Pains in the *Viscera*, which are the Effects, and not the Cause of this Matter, upon a violent Stimulation is thrown both upwards and downwards, and becomes mortal *Hippocrates* tells us, it often causes Death, and supposes it to be generated in the *Viscera*, where some Gangrene lies conceal'd.

As the Matter is various, so is the Distemper; which is either Acid or Alcalious; the Acid is more mild and gentle; but the Alcalious is very violent, and then it sends forth a *fetid* Smell, like a dead Carcass, intolerable Drought, and violent Heat; it inflames like Fire, and consequently is Costick, and causes Exulcerations in the Intestines and *Oesophagus*, to be emitted upwards.

Acid black Bile proceeds from the same Causes, and takes the same Progress as the former; the Breath and Excrements smell acid, but is accompany'd with no great Thirst; when ejected, it does not shine as the former, but is of an earthy, ponderous Substance, and ferments in the Intestines, and causes Inflammations, like Oyl of Vitriol; but does not, (as the alcalious Bile,) cause *Dysenteries*, Cancers, &c.

THE first Practical Corollary is, That this Matter never appears before there is some latent Gangrene in the Intestines. 2dly, This Bile is generally incurable. The Symptom of Death is, when it sticks in the internal Parts, and cannot be separated.

3dly, To render acid Matter mild, 'tis necessary to observe the particular Nature of the Bile, and to give Contraries: Thus in a Wasting of Flesh, 'tis necessary that the Vessels should be mollify'd,

by drinking Oyl of sweet Almonds or Linseed : You should begin always with a Clyster compos'd with Oyl, or Butter, whereby the Fibres of the Intestines may be softned and relax'd.

4^{thly}, If the Matter be of an alcalious Nature, you may give Decoctions of Barley. 5^{thly}, All acrid purgative Medicines which stimulate, are to be avoided. 6^{thly}, Opposite Acrids are to be avoided, where a violent Alcaly is joyn'd with an Acid ; for from thence arises such a violent Conflict, as will cause a Rupture in the corrupted Vessels. 7^{thly}, Almost the whole Body may be depurated by the *Alvus*, contrary to the Opinion of *Helmont*. 8^{thly}, Whence purgative Medicines are not to be accounted Poysons, as tho' they weaken'd or corrupted the Body, contrary to *Van Helmont*. 9^{thly}, Medicines which be Purging Electories are not to be given. 10^{thly}, Therefore the Virtue of Purgatives is falsely deduc'd from their acid Nature ; for Alcalies purge, according to the Opinion of the Chymists, and enervate Acids, because they are Stiptick. And thus much for Purgative Medicines.

CHAP. XXVII.

Of Vomitories

ALL those Medicines which draw forth Matter contain'd in the Stomack out at the Mouth : The proximate Cause of Vomiting, is a Compression of the Sides of the Stomack. The Motion which is communicated to the Parts, is either the Muscular Motion of the Tunicks of the Ventricle, or an external Compression of the *Saccus Ventriculi*, or both concur together.

To

To know how the Ventricle operates, It is necessary to observe the Structure of the Fibres; for the Ventricle has the Power of contracting itself only to certain fix'd Bounds; which Contraction never has any Power, but when some Matter distends it more than the Fibres do in its natural State.

1st, It should be requisite, that there should be proper Matter in the Ventricle, which should be expell'd. 2^{dly}, A Contraction of the Ventricle. 3^{dly}, A Convulsion of the *Pilorus*, and at the same time a shutting and opening of the upper Parts; the greater the Distension of the Stomack is, the more the Fibres are excited to Action; when both the Orifices of the Stomack are contracted, there arises Vomiting; and before that a painfull Sensation, proceeding from the Contraction which happens also in the Colick. Now if you rub the Bottom of the Stomack with a Cloth dip'd in Oyl, Vomiting will arise from the Motion of the Ventricle, &c.

1st, AN Acrid Medicine, which vellicates the Ventricle, excites Vomiting; as Fat, Oyl, and *Emperumaticks*.

2^{dly}, AN Inflammation of the Stomack, causes a Vomiting; for then the Mouth is contracted upon the Assumption of the minuteft Body, whence arises Vomiting, as it often happens in the Measels and Plague, &c. from whence proceeds a Gangrene, which is generally attended with Death.

3^{dly}, FROM a *Schirrus* in the Ventricle, which hinders the Passage of the Food into the Stomack. 4^{thly}, From all manner of Repletion; for it signifies nothing of what Nature the Matter is, for if it be taken into the Stomack in too great Quantities, and cold, it excites Vomiting; for then the *Pilorus* is contracted. 5^{thly}, Hypocondriack, or Hyfterick Convulsions excite Vomiting; for in such Cases they rush sometimes one-way, and sometimes

another. 6tly, Convulsions arise from a disorderly Motion and shaking of the Body; an Example of which we have in Persons being shook on Horseback, in a Coach, Ship, &c. 7tly, Symphatick Convulsions, as in Wounds on the Head, Apoplexies, when the Nerves are oppress'd with an extravasated Liquid, which also happens in the Colick, and Pain in the Reins, at which time we may see intercostal Foldings, and the Nerves of the *Par. vagum* distributed to the *Viscera*.

A 2d Cause of Vomiting arises from hence, viz. When the Muscles straiten and oppress the *Abdomen*, and at the same time press upon all the *Viscera*. Now if the Determination of this Pressure happens at the Orifice of the Stomack, or *Oesophagus*, whence the *Abdomen* is straitned.

In a nauseous Stomack it begins to be slowly mov'd, and Vomiting is a stretching of the *Diaphragma*, the Muscles of the *Abdomen* are drawn downwards, and press the Stomack and other *Viscera*; by this Means the Intestines being compress'd, whence all Things are secreted, the Spleen and *Pancreas*, which lie under the Stomack, being put in Motion, whence its Blood is violently mov'd to the Liver, and the *Uterus* is also mov'd, and there happens a Distillation of very clear Urine, and a very large Secretion of *Lympha*, and an involuntary Secretion of Bile, and Seed, and *Menstruum*, that have lain unmolested several Years, are secreted by Vomiting; and sometimes small Stones are secreted by this Motion; Spitting of Blood often happens in such Cases, because the Blood contain'd in the *Viscera* of the *Abdomen*, is forc'd to the upper Parts; not from the Narrowness of the *Thorax*, for that is indeed dilated. An Apoplexy arises from a venous Blood flowing to the right Ventricle of the Heart, its Passage being hindred thro' the left Ventricle

Ventricle by the Pressure of some Arteries; the Compressure is made by the *Abdomen*, from whence watry Humours and Swellings often proceed, and the Muscles become hard.

THE 3^d Cause of Vomiting, is, when these two fore-mention'd Causes concur together, and then it is very violent. Now the Bile and Blood are not evacuated, when the Stomack is too full: The Motion of the Intestines begins at the Throat, and descends gradually; and the very situation of the Valves causes all Things to descend; this Motion of the Intestines being inverted, the contrary Effects happen, *viz.* Vomiting. Thus Clysters often cause violent Vomiting, which continues a long time, and there arises a convulsive Pressure in the *Abdomen*, and a Colick generally follows. As several Authors do observe. A Vomiting does follow from a Humour of the Nerves, of the *Par Octavum* joyn'd with the intercostal Nerves; for if one Sort be convuls'd, the other will be affected in the same manner.

I SHALL rectify a Mistake in some Persons, who place the Cause of Vomiting intirely in the Stomack; whereas those Things which follow, may be more properly reckon'd the Cause of Vomiting. As 1st, Those Things which vellicate the Parts. 2^{dly}, Such as disturb the Animal Spirits. 3^{dly}, Being toss'd in a Ship. And Persons in such a Case feel chill, and vomit terribly. 4^{tly}, Persons that have been struck on the Head, so that the Blood sticks in the Head within the Membranes, will be seiz'd with Vomiting. 5^{tly}, Such as are Paralytick at the beginning of a Fever, or the Small-Pox; for then those Convulsions, which are universal over the whole Body, produce Vomiting, and there is an ungrateful nauseous Sensation at the Stomack. 6^{tly}, Acrid, fluctuating and distending Matter, if it happens to be in Abundance, will excite Vomiting.

miting. Weakly Persons vomit upon eating too much Pepper, Ginger, &c. whereby the Fibres of the Stomack are vellicated; like to the Eye when it is prick'd by any acrid Body. Purgatives which are too *Diuretick*, Infusions from Hellebore, and Glass of Antimony, have the same Effect. There are five Sorts of Vomitories.

1st, ALL Bodies which enter into the Stomack in great Quantities, and fill it too much, force the Dorcel Fibres into Contractions, and bind the *Pylorus*. Thus, Water alone taken inwardly, if it be indu'd with any Acrimony, Ale, Wine, &c. performs this Operation, if injected in of a sudden. 2^{dly}, All Bodies which relax and lubricate the Jaws, the *Oesophagus*, the Stomack, the Intestines, so that they may easily bear what is contain'd within them upwards; such are all fat Bodies, taken in large Quantities, and continu'd for some time; thus Butter, Honey, *Lixivium* of Soap and Fat, relax the Fibres; scarce any thing can be more lubricating than these, tho' they are scarce at all acrid.

MECHANICAL Remedies, which by a certain Irritation excite Convulsions in the Stomack: Thus if the Nerves of the Jaws be irritated, the *Præcordia* will be so too; and if any one tickle his Mouth with a Feather, he will grow sick and vomit; which arises from the joynt Foldings from the Nerves of the *Par Oſtarvum*, and the *Intercostal*.

4^{thly}, SUCH Things as irritate the Stomack as soon as taken into it, like as a Feather operates in the Throat; such are white natural Vitriol, and Vitriol of Steel; this Vitriol may be dissolv'd in Water, and one Drop of Oyl of Vitriol may be added to it; this we do because the Spirit evaporates by Filtration, and only an acid Spirit remains; or instead of the former Oyl, you may add Oyl of Sulphur per Campanam, which Paracelsus calls, *Gilla*, and

and white Vitriol, and Vitriol of Steel, filtrated and evaporated into a white Substance. One or two Grains of Verdigreese, is a strong Vomit; taken in Syrup it excites Vomit immediately; dissolv'd in Vinegar, 'tis accounted a Crystal, half a Grain of which will excite a violent Vomit; Tincture of Tobacco, but not that which comes from *Brasil*, because it operates too violently; let the dry'd Leaves be infus'd in Spirit of Wine, and let this Spirit be given for a Vomit; its Force may soon be stop'd by taking a large Quantity of Water, two $\frac{3}{4}$ of the Juice of fresh drawn *Carduus Benedictus*, or Wormwood. Oximel of Squills is a very powerful Vomit; The Juice of *Rapbanus Rusticanus* proves Emetick in Pituitous and Scorbutick Cases, and is very beneficial; it must be taken immediately; for if it stands two Hours, it loses its Vertue. The Seeds and Roots of *Rapbanus* are good in such Cases. The Seeds and Flowers of Dill are good to stop Vomiting; but if you eat one $\frac{3}{4}$ of the Seeds, they will excite Vomiting, and leave a Nauseousness behind them for a long time. All these operate, not by mixing with the Blood, but by stimulating the Jaws and Stomack with their acrimonious Particles.

1st, THE Use of these Medicines, where a Person can easily vomit, and where the Pituitous Matter is not too hard cak'd together. 2^{dly}, As often as Sicknes arises from too much Repletion, and not from any viscid Matter which adheres to the Body, these Things are very prevalent. And from hence you may make Choice of Medicines either in acute, or slow Distempers.

3^{tly}, MEDICINES, which being communicated to the Blood, cause universal Convulsions, but especially in the Stomack and Intestines. These Remedies remain two Hours in the Blood before they

operate; but when they begin to take Effect, the Patient complains of a Pain in the Head, and Convulsions in the Stomack. Of such a Nature is white Hellebore; which we dare not administer, by reason of the violent Convulsions it excites. Black Hellebore operates more gently, given in the Roots to one \mathfrak{D} ; or you may give of the Leaves of *Asarabacca* to 10 Grains made into a Pultis. Or of the Drops or Seeds of *Gambouge* to 10 Grains; of *Turbith Gummosum* 3 Drachms, half a Dram of *Cataputia major*, either in Root or Seed, will cause a terrible Vomit. Out of the Class of Minerals, you may take Mercury, and Vitriol, and all Sorts of Turbiths, Regulus, and Glass of Antimony, and Sulphur given to 5 Grains. Spirits of Salts will admit of all the Degrees of an Emetick. Vomitories are generally *Spasmodick*. Thus after the taking Regulus of Antimony; at first the Patient will feel a Pain in his Head, and afterwards an Uneasiness in the lower Parts, and will Sweat all over his Body, before he begins to Vomit. Now no Medicines besides strong Emeticks, are Spasmodical.

Corol. 1. HENCE it is plain what Sorts of Matter are capable of being ejected by Emeticks. Vomitories have been thought only to evacuate the Stomack; whereas by them a *Saliva*, and *Mucus* have often been evacuated, in large Quantities out of the *Frontal* and other *Sinuses*.

Corol. 2. HENCE 'tis evident, that there is no nobler nor safer Medicine can be given in a Dropsy than an Emetick, because nothing evacuates more, or straitens the Matter extravasated in the *Abdomen*, than a Vomit. Hence Spasmodical Medicines are most beneficial in this Case.

Corol. 3. THERE is no better Remedy than an Emetick to open Impostumes in the Sides, Lungs, Mediastine, or its Duplication under the Breast, in
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the Reins: This is commonly thought to be dangerous, but in Reality it is not so, unless a Spitting of Blood happens. Hence Phthysicks of a long Date are often cured by Emeticks, especially if the Vomit does not hurt the other Part.

Corol. 4. EMETICKS are good in all Obstructions of the Body, especially of the *Peritoneum*, and to dissolve hard impacted Matter.

Corol. 5. HENCE it doth appear, that they are useful in several Distempers, both chronical and acute.

Corol. 6. VOMITORIES are very obnoxious to all the following Persons; to all troubled with Plethories, and then they generally cause Apoplexies, or a *Sputum* of Blood in the Lungs; to all Phthysical Persons, that are very bad; they are also hurtful to Persons that are very much troubled with a *Diathefis* (or preternatural Disposition of the Blood) or are afflicted with the Stone; for then those Stones fret and rub the Vessels very much. Emeticks are also prejudicial to all Persons which have *Schirruses* or *Apoplexies*, arising from Abundance of accumulated Flegme, and to Persons troubled with *Dropsies* in the Head, whose *Viscera* is corrupted. I say, Vomitories are hurtful to all the fore-mention'd Persons.

Corol. 7. YOU must be sparing in the Use of Vomits, where the Matter is impassable, hard and fix'd; but you must first give such Medicines as cut, lubricate and relax. And by this Method great Cures may be effected.

Corol. 8. AFTER the Matter hath been extracted by diluting Medicines, as I said in the foregoing *Corollary*, you must make use of Decoctions of a fat and oily Nature.

Corol.

Corol. 10. AND *Hypercatarrhs* (or too much Purgings) must be avoided. It often happens in Vomits, because all the Vessels are press'd; but it may be stop'd by any *Antispasmodick* Remedies, or by such Things as are very diluting, relaxing and opiating; and *Ligatures* may be made in the Arms and Thighs, which will undoubtedly assuage the Convulsions; or Aromatics will stop them; likewise will *Mitridate*, *Phylonium*, or such Things as cause a Motion from the Centre to the Circumference of the Body. Now if by this Means the Intestines should be too much relax'd, and a *Diarrhœa* should ensue, sharp Things must be given; as Quinces, or Jesuit's-Bark decocted in Spirit of Wine; or you may give Things fermented, as common Spirit of Wine, to 3 Drachms, with Spices, and then the Vomiting is stop'd.

C H A P. XXVIII.

Of Diureticks.

DIURETICKS are such as excrete Urine in great Abundance, whilst they exert their Power in the Body. This Secretion is made by the *Urethra*, or Urinary Passage, into which the Urine flows thro' the Bladder from the Ureters. This is plain; for in a *Dysentery* arising from a Stone in the Reins, no Urine is excreted. See *Bonnet Sepulch. Anat.* For nothing can be squeez'd out of the Cavity *Peritoneum* into the Bladder; contrary to the Opinion of some Persons; which Opinion is thus refuted: If both the Ureters in living Animals be ty'd up, not one Drop of Urine is excreted,

red, but the Animal immediately dies. Therefore *Diureticks* are such Medicines as affect the Emulgent Arteries in such a manner, that a larger Quantity of Urine is excreted than otherwise would be. Which Medicines are such as follow: That is a *Diuretick Medicine*, which expands and dilates the Renal and Lateral Vessels. *2dly*, Whatsoever dissolves the Blood, that is, divides and dilutes its spherical Parts, is *Diuretick*: The Excretory Channels have very great Resistances, because their Extremities are wide; whence it is necessary, that a larger Quantity must be excreted here: And indeed these Medicines cause the Blood to flow to the same Vessels with a greater Velocity. And *4tly*, Those that do determinate a Flux of Blood more to the Veins than to the other Parts of the Body: Hence follows, that the moving of Cold, is the very best *Diuretick* Remedy, because it hinders Perspiration. *5tly*, And those Medicines which do more stimulate the Vessels and Secretory Contractions, are these which follow: To shew the Distinctions of the Urine, are *1st*, Drink. *2dly*, Crudeness of the Chyle. *3dly*, The Coction of the Blood. *4tly*, By the Motion of the Fluids being render'd acrid, and of the Solids made attrite, red, sharp, saline, oily and terrene. *5tly*, Is of Distempers when the Urine is both thick, and of different Colours, and therefore Medicines are taken from a twofold Head; either the Matter drawn out from that Matter, or by its own Action. Now all *Diuretick* Medicines are, *1st*, Those that loosen; and the best of all are Decoctions, Emulsions; oily ones, as being extracted from a Juice squeez'd out; and these formerly were express'd by the Name of Loosners, and Emollients; as are Mallows, Oyl of Wallnuts, *Terebinth*, &c. are *Diureticks*, only so far as they relax. These, that they may become *Diureticks*, are

to be taken in an empty Stomach, in a cold Air, with a little moving up and down. 2dly, These following are to be injected in Form of Clysters, as Pellitory of the Wall and Lin-feed, whence it follows that these do cherish, soften and loosen the Urine just as a Bath does. 3dly, These are apply'd in manner of a Bath, being sent down in Bodies to the Region of the *Diaphragma*: Hence the chief Place of expelling of Urine, is owing to these Medicines; for if any Obstructions are in the Blood, that are thick, in the urinary Vessels the best Medicine is to relax them; for if violent, strong Stimulators should be us'd; they destroy the Vessels that are relax'd, save only in a Dropsy; for they debilitate the Vessels by relaxing them. 4thly, In the Cramp, and acute Distempers, this Class of all the *Diureticks* doth most good: In *Hystericks* and *Hypochondriack* Cramps, these alone are the best for a Drink, and Clysters being injected from them do both correct and abate the Cramps, which proceed from a different Cause, as in Infants, as contracted from an acid Humour: Here these Relaxers are very prevalent, if help'd with an Alcaly, as in the Small-Pox, &c. for an acid Draught corrects every Topick.

CLASS 2d, treats of Loosners and Diluters of the Blood, which are only Water of any Spirit that drops; saline Things cannot dilute the Blood, whereas they are loosening. And first these either dissolve the whole Mass; or 2dly, Increase it, being thin, and mov'd, and thus they loosen it. as 1st, Mineral Waters: Hitherto also belong all small Wines and Drink of Tea, Coffee: All Saline we know to be good, and Alkalines, especially made and drawn from Oyl. 2dly, Are all *Ammoniacks*, which from a volatile alcalious Salt, and a volatile acid Spirit draw-
 gth a congealing within themselves; common *Am-
 moniack*

moniack Salt from an Alcaly of Soot, or Urine, or any thing fossile, or what is digg'd out of the Earth, they all have a *Diuretick* Force, if filtrated and sublimated to Flowers, they draw out Urine. 3dly, *Ammoniack* Salts compound, and fix'd, and from Salt of Tartar, with a Spirit affus'd, being mingled and receiv'd with some Spirit of some Mixture, which renders the Salts volatile, are extremely *Diuretick*, being reduc'd into Crystals, being first fix'd before a Fire. 4thly, From Saponatious (ones) with Salt; Alcalies fix'd are joyn'd to oily ones; and all volatile oily Salts, are here respected: Such are *Ossa Helmontiana*, from the Spirit of Urine, and Spirit of Wine given to 1 Drachm and an half, or to 1 Scruple, you carry away the Prize from all others: Salt of Hartshorn, of Urine rectify'd unto one 3, of Oyl of clear Turpentine, will be accounted a volatile Soap of Turpentine, if the Salt of it be not too sharp and dry; likewise from Salt of Urine and Spirit of Wine two 3, with the Oyl of Turpentine two 3 and an half, and sublimated together. An oily Salt is esteem'd the best Saponatious Medicines. Hitherto are fix'd Soaps, from Oyls express'd out, or with their essential Salts distill'd. 5thly, Salines follow an Alcaly, as their Juices being oily; from Sea-Oysters, from the Juice of Crabs, and Muscles, or any Shell-Fish. The Juices also of *Millepedes*, are said to be chief *Diureticks*; the Salt of them is very nauseous, like to *Borax*. 6thly, All Vegetable Juices, of which Chymists draw little Oyl, and much Salt; for from no oily Plant can be drawn a Salt. As *Opium* hath little of Oyl, but much of Salt; and the Juice of Parsley; likewise all Kinds of Wood-Sorrel, Fumatory, Sea-Purslain (or Brook-lime); all Sorts of Gillyflowers, wild Radish, and common Radish, and Golden Rod.

CLASS 3^d, treats chiefly of *Diureticks*, being four different Kinds of Medicines. 1st, Are all acrid Stimulators of the Vessels of the Kidneys, as the Parts of some Insects, as Bees, Ants, Cantharides, Millipedes, if taken they loosen the Blood, and accelerate the Motion of all the Liquids, as if any one should take 4 Grains of *Gausserit*, he shall have a Fever, and from the Juices of some other Insects. 2^{dly}, All Saline Medicines which are to be consider'd as Relaxers. On the other Hand they are respected as they stimulate the Vessels, native Juices as yielding an acid volatile Salt, by the *Chymists* likewise known Δc *N renæ*. From the Plant the Oyl first ascends with its Water, and afterwards follows an acid Water, which being rectify'd yields an acid volatile Salt. 3^{dly}, All alcalious and fix'd volatile Salts, also Heat, and every immoderate Motion. 4^{thly}; *Specificks* are *Diureticks*. 1st, *Aromatics*; some are Balsamick; such are Saffron, Rubarb, Cassia, Turpentine, Juniper, Balsam that drops from Plants; as that of *Copavi* accounted the best for the Reins and Kidneys, and they alter the Urine according to Taste or Smell. 2^{dly}, Others, as according to the Heat, they alter not the other Parts. *Asparagus* renders the Urine *fatid*, or ill savour'd.

CLASS 4th, Contains Medicines that provoke Cramps; as Cantharides, Millepides, Grasshoppers, or Sautrells, common Flies, Ants, Bees, New-Ale, and dead Wines, Men being not used to them; all such are *Diureticks* and Relaxers. Hence whatever is the Order of these Medicines, the Means is such as to cure, and to provoke the Urine; as when the Urine is stopp'd, it is to be brought forth again. 1st, The Vessels are to be relax'd; 2^{dly}, to be cleansed. 3^{dly}, We must take care that the Matter may be mov'd. 4^{thly}, Medicines must be given that

that penetrate to the Reins. *5thly*, If none of these do good; then last of all, Spasmodicks must be administred. In Chronick Diseases, first of all the Vessels are to be relax'd; next to be purg'd; *3dly*, Medicines that are accelerating; and lastly, Stimulators are to be given.

Now these Medicines do more move and purge the Blood, than all Purges by the *Alvus*; for the more saline, oily and gross Parts pass thro' the Reins, than thro' any other Part of the Body. Hence it is manifest, That the Urine is very often stopp'd. Therefore these do good when the Vessels are straitned, and the Blood thick, or stagnate, or if a clammy, or glueish Humour lies in the Blood, or by reason the Matter may be corrected as to the other Parts, as by Sweat; lastly, If a Palsy should be in these Parts, this Evil is scarcely loosned, or cur'd.

CHAP. XXIX.

Of Sudorificks.

SUDORIFICK Medicines are all such as do drive out from the inward Parts of the Body, thro' the small Pipes, or cutaneous Fistules. Therefore whatsoever provoketh Sweat and contain these small Fistules, in that Part of the Skin, and are either the Emissaries of the Glandules, or however they may be the extream Parts of the *Lymphatick* Vessels. Hence it follows, That *Sudorificks* arise from the Arteries, the Faculty of driving (our Sweat) is procur'd in the Arteries, thro' the Extremities of the Skin. The Effect of Sweat is to purge and cleanse the whole Body by the *Vasa Cutanea*,

Cutanea, tho' the Body is not cleans'd of the Hurt, or Injury by it, but the very best Blood that is contain'd, is referr'd hither: From whence the flexible, soft, moveable, explicable, sentient Fibres and Vessels are made and render'd fit for Motion; and therefore whatsoever forceth Sweat from a sick, or a sound Body, the same Conditions indeed are requir'd, which the *Materia* of *Diureticks* requires, but differs by Reason of the *Sudorifick* Matter; the Conditions are the same spoken of. Therefore in *Diureticks*, 1st, A Laxity, or widening of the emissary Vessels is requir'd. 2^{dly}, A Solution, or diluting of the Blood. 3^{dly}, A more speedy Application of the Blood towards the same Vessels, the same State remaining. 4^{thly}, A greater Determination of the Blood to outward Vessels, from the inward; this chanceth in many Men, mostly of timorous and cowardly Spirits. 5^{thly}, When a Cramp is brought of the ultimate, or subcutaneous Glands. 1st, Sweat chiefly is made by watry Matters thrown into the Body, as warm Water alone provokes and excites Sweat, the drinking of Tea, Coffee, &c. This Sweat as it comes out, savours not ill, nor is it durable. 2^d, Is from crude Chyle, in lying-in Women, this often comes to pass, this Sweat and Milk of those vanisheth, then soon goes off in consumptive Persons, it happeneth also to many infirm Persons in a Morning. The 3^d is oftentimes when the Blood is over heated, and also in fat Bodies, which have not much room to breath. A 4th is, from the Solids when over warm, or decay'd, and from the Blood, or Liquids too much relax'd, a Red, Acrid, Fat, Terrene, and very Saline, and ill savour'd Taste whensoever the Blood is extreemly mov'd throughout their Vessels, and is so accounted in them that are over tir'd. The 5th, is a very sickish and strong one. A watry

try one is often consumptive, and in lying-in Women very frequent, and 'tis likewise viscid, raw, like Tragacanth, yellow and red, often smells very ill: After all (these) is one that smells like a dead Carcass, as in the Plague or Pestilence often happens.

SUDORIFICKS whose Effect consists in relaxing the Vessels, by inward or outward Applications; internal ones are all those which being spoke of in *Diureticks*, those are excepted which are apply'd to the Reins and Kidneys specifically, and are taken in Decoctions, or Emulsions, for many in acute Fevers. These do produce Sweats by relaxing the Vessels, when as very hot Things prevail nothing to effect it. Others are *Antispasmodick* ones, where Infants, for Example, are labouring under an Epilepsy, all those are to be given which do inwardly relax, whereupon a Sweat, or any acrid impacted Matter may be remov'd, either by weakening it, or making the Cause of the convulsive Motion of no Effect. Opium is the chiefest *Sudorifick* in this Course, seeing it stops the overflowing of the *Liquidi Nervosi* into his own Vessel. Therefore all those that take away the Stimulation of the *Vasculi Nervosi*, (or Sweating-Vessels) we call them *Sudorificks*; in sharp Distempers terrestrial ones drive out Sweat, as for Example; In the Sweat in *England* when the Blood turn'd to an Alcalý. External Relaxers are *Sudorificks*. 1st, Frictions, any Ways apply'd. 2^{dly}, All Vapours of warm Water cover'd over with Coverings, and apply'd to the Body; the Spirits by Fermentation are brought forth: Thus far in taking Decoctions contrary to the Disease, for Example; In the Itch or Scurvy, or in a Leprosy, &c. Medicines may be given contrary to this Disease, that are moistening, and you should lay the Sick on a

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Bed,

Bed, and under it, the Spirit of Wine being lighted, it might go up to the Body; or Baths of any Sort are good in such a Case, which do loosen the Vessels: But these are respected which do compress the Body towards its own Center. On the other Hand, if any one is put in hot Baths that hath weak Lungs they are suffocated soon, if not immediately let Blood, on a Fall. Unctions are hitherto referr'd. As from the Oyl of Almonds, and the Fat of Animals, which do hinder Sweating, but the Body is relax'd with them. Also hither belongs the Washing of the Body with the Water of Saponatious Things.

THE Use of these *Sudorifick* Medicines is in every Disease that is come from a great Cold, which injures the Lungs, and makes the Vessels frigid and stiff, and coagulates the Liquids; likewise in every Distemper where there is Filth, Scabs, sickly Humours, Scurf, or Mange, an *Elephantiasis*, a Leprosy; in every Disease, where a Convulsion, or Cramp of the extream Emissaries, is to be remov'd. So for every sharp impacted Humour they are prevalent; as of a Serpent, Viper, &c. for a Pest, and pestilential Distempers, this Remedy is very efficacious. In the last Place, when the Liquid Motions are too much hasten'd, as in very acute Diseases, these prevail most.

THE second Title of them, which do loosen, and dilute, or purge the Blood: All Diluters and Dissolvers are referr'd hither, spoken of in *Diureticks*. Diluters in all sharp Distempers, except in Frigid, Flegmatick ones. And in a Dropsy, the chiefest Diluter is Water, whose Virtue is increas'd by its Heat. Amongst the Relaxers we regard them which procure to the Vessels that Strength of removing, or loosening, or that solve the very Liquids; of which last Sort is *Sal Nitrum* alone: In acute Distempers,

stempers, a Mixture made of any Drops sweetened with Hony is a rare Thing. Water taken Hot, a good Draught, is also profitable, it provoketh Sweat, it dilutes the Blood likewise, and dissolveth any putrid Matter coming on. Farther, if the Sweat in any acute Disease is to be forc'd out, this doth very great good. A Mixture of a little Mace, or any other *Aromatick*. Here I shall express no farther; other Medicines being spoke of before.

THE third Title is, what are requir'd from *Sudorificks*, viz. all such as do stimulate the Vessels; as Running, great Heat, a Draught of spiritous, saline, and aromatical Opiats taken very Hot. *Aromaticks* are heating, and of vehement Motion. All these are the greatest *Sudorificks*.

THE fourth Title is, what Things are prescrib'd to the Vessels. 1st, Are all external Relaxers which do make the Fibres less resisting. 2^{dly}, Are all Cleansers and internal Relaxers. 3^{dly}, Are required such as lessen, or diminish the Pressure of any acrid Cause. 4^{tly}, Are Things which do invigorate the Heart: Hence all the *Cardiack* (Medicines) spoke of before, which procure a sharp Stimulation, or do generate more Liquids; such are the Juice of Lemons, Cinnamons, Ginger, *Sal volatile*, Rhenish Wine. Lastly, External Stimulators chiefly are acrid Things; as Vinegar, Ginger is express'd by *Helmont* to be a prevalent Remedy; likewise the Motion throughout the Internals being obstructed, the Affection of the Mind, as Anger, Fear, which do relax the Internals that be stopp'd up. External *Specificks* we shall regard according to their Use. Unless they are order'd after this Sort, and in these Conditions premised. *Specificks* commend-ed by the Ancients, are *Terra Sigillata*, the Root of Swallow-wort, the Leaves of Water Germanier,

Bezor-Stone, *Lapis Pietra del Corpo*, growing in Spain, *Lapis Judaicus*, or of Goa, *Trochisks* of Vipers. The Infusion of *Lapis del Porco*, will force out no Sweat, when it has been prescrib'd, and but little in the *Lapis de Goa*, *Trochisks* of Vipers unto one ʒ, the Dose often repeated, unless scarce any Sweat comes forth. Rules often practis'd; 1st, 'Tis manifest that the Causes of Sweat are various, and very opposite. 2^{dly}, There are divers Effects of Sweat, and oft-times opposite; so that Sweat depends on the Means of the Subject whence it is driven out. 3^{dly}, As there be divers Applications, sometimes with Frictions, with Motion, with Stimulators, with Diluters, Lixiviums, sometimes with Oily Medicines. Lastly, The Necessities, or Occasions of Sweat are various, to expell and stimulate a slow Distemper, as a Tumour (or ill scent) of the Feet; by this means a Leprous Body is cured and healed by an inward Heat, as with Pills of *Venice-Soap*, to ʒij every Day given, with which the Body becomes relaxed. Moreover, Portions to be Drank; Let a Decoction be given of Soap or *Guaicum*, or of any other Scorbutick Plants or Shrubs, and if the Distemper be Alcalious, the Body is to be fill'd with some Things mix'd up, or other Opposites to them, as in Alcalies the Cure is performed with Nitrous Medicines. If Poison be in the Body, a *Sudorifick* must of necessity be ordered according to the Places; Treacle, *Mithridate*, &c. Stimulators are given with watry Things hot: The Occasions of forcing of Sweats depend on many Causes, which is worth while to demonstrate. *Praxis*, as in the *Small-Pox*, the first, second, third and fourth Day, the Sweat can hardly be hindred, because the Liquid is excreted through the *Cutis*, or Skin; if such a Caution may be observed, as the Liquid is never deficient in the Blood,

a Sweat is to be promoted; whereas, Exsiccating Medicines destroys: About the fourteenth Day the Crisis of them is to be hastened. In acute Diseases *Sudorificks* may be given; but loosening ones are by all means to be avoided. According to the various Cause of the Disease, *Sudorificks* are altered and varied, especially in Diseases, if stubborn, obstructing and flatting, or acrid; if acrid, no oily, alcalious or Acid, in a very flagrant Fever, where is too much tossing and tumbling, which relaxeth the Saline into an Alcalious Nature, but the debility requires Stimulators; so we prepare a Liquid-Acid, being a loosner, mixed and stimulating, such is of Rhenish Wine, and some *Antiphlogestick* is required, as *Sal Nitrum*; of Rhenish Wine ℥viij. of *Sal Nitrum* ʒij, mix'd with Syrup of Violets, of this give every Hour, and keep warm in Bed, that the Sweat may work out, the Determination being made for the Skin. In an Alcalious Distemper, when the Weakness increaseth much, more Water is to be given, and a little Wine, (that is Wine and Water mingled). According to the various Nature of the Disease, various *Sudorificks* are to be given or required, as if the Nature of the Disease be very saline, we drive out with watry Things; if it be of the Nature of a *Gallick* Distemper, then merely *Diaphoretick* and *Mercurials* are required; if the Matter be stiff and tenacious, then Volatile Salts are to be given, as to the divers Situation of the Disease; as if it be Topical, the Nature and Cause of the Disease is to be determined with an external Loosner. As to the means of the duration or continuance of the Sicknes, the account of the Sweat is various. As to the Fourteenth Day of an Acute Disease, Saponaceous and Aromatics are to be given, when in the beginning Relaxers and Diluters, and Cleansers do good.

C H A P. XXX.

Of Diaphoreticks.

DIAPHORETICKS, are all those which are of the Kind of *Sanctorian* Perspiration, which cleanse any sort of Matter of Disease without the Body, the Cause of the increas'd Perspiration being *Sanctorian*. 1st, The Strength of the *Viscera* being increas'd so far as it may waste, or consume any Liquid Body into very small Parts, and dissolves the Liquids, as they become small Lumps or Masses. 2^{dly}, Whatsoever Liquids are thus diminish'd, they drive them out to the Vessels of the Body that are extream and exterior ones. 3^{dly}, A strict, or quick and loosen'd Nature is requisite and proper in those very Vessels. 4^{tly}, Things which perform all these at one time; and these are *Diaphoreticks*. We account those that are quick and sharp to be the chiefest of all, said to be *Diaphoretick* Medicines; or if at least should use very few of them. They ought to conquer every Disease. A *Sanctorian* Perspiration, is a Sign of a sound and perfect Health; for it only happens when the Liquids are of a very sound Disposition, no ways obstructed; the Liquid Matter being very thin, the Strength of the *Viscera* is increas'd by them, which may thus mix with them, as they may cohere with the Fibres, whence by them the *Sanctorian* Perspiration is increas'd. Thus *Astringents* work; as Tamarisk, Ash, Rhubarb, &c. here these are commended to act upon the Solids. Likewise Exercises of the Body increase a *Diaphoresis*, that is, a Perspiration of all manner of *Effluvia's*. Motions that shake the Body; as a Horse-Litter,

Litter, Coach, &c. It likewise does elevate and weigh down all the Vessels in a greater Body. An Acrid provoking the Motion of the Lungs, in like manner of the *Muscularis Voluntarius*, performs the same, as the Lungs do upon the Blood.

ALL Actions of the lightest Stimulators are hitherto referr'd; but strong ones do hinder. As a Mercurial Spirit to 1 Grain, will increase all Secretions; if half a Pound sublimated, it will subdue the *Alvus*, and Vomit; and the more it is fix'd, it retains the less Force, and the Acridity thereof is the milder, and will increase a *Diaphoresis*. Therefore every light Stimulator will augment this Perspiration. Also Meats and Drinks being light. See *Sanctorius* concerning these Things. A poiz'd or equal Motion of the Liquids, as Saltations and easy Deambulations, promote these. Likewise the Vessels duely loosned, as it cometh so by the Cleansing of the Skin, and Frications, and Alcalious Medicines. These are the most healthful.

C H A P. XXXI.

Of Medicines Uterine.

TO this Class are referr'd *Medicamenta Excaluca*, *Agisologia*, and also *Emenagoguea*. *Emenagogues* are those which stir up and cause the Excretion and Secretion of the menstruous Blood: It is a Derivation or Draining from all the Parts of the Body to the *Uterus* and the *Vagina*; that Draining or Course is made at the Vessels of the *Uterus*, which are plac'd by the Mouth of the *Uterus*, partly above, and partly below the Mouth of the *Uterus*;

as it may in great-belly'd Women full of Humours. And in the Dissection of Women great with Child, the Case is manifest, where the Blood was in the *Vagina*. 2dly, The Strength of the Heart only fills the Vessels. As the *Ultima Arteria* may be open'd without a Rupture of the Vessels, and it is prov'd, that the Blood is transmitted from them into the *Placenta* of the *Uterus*, from the Flux of the *Lochis*, after the Rupture of the *Placenta* from the *Uterus*; first the Blood issues out thicker, after a few Hours it comes thinner, and after that clearly Water, in the Conclusion no Blood. *Emenagogues* are those which increase a Resistance in the Veins, either which loosen the *Extremum Arteriae*, by increasing a Plenty, or Liveliness of the Blood. The prime Cause of Secrecion, is a Plenty; whereof there be three Causes; a greater Plenty, a greater Rarefaction, and the same in Quantity. And these are also the Beginning of a *Pletbora*. The growth, or increase of a Woman more than is expedient, or expected: The Reason is, That the more a Woman groweth in Bigness, so much the sooner she casteth the *Menses*, and *vice versa*, forceth out the Liquid in Abundance into the *Vasa* or Vessels of the *Minima Resistencia*; for in a Man a *Pletbora* is the same in Nature, in his increasing, or growing, altho' they grow slower: As for Example, The Blood will flow from the Nostrils: Tho' *Sanctorius* is against that Opinion.

By how much the more *Sanctorian* Perspiration is increased in Women, by so much the less they have the *Menses profluvium*, as Maidens and Women that labour much; when on the contrary, those that sit much, and drink, and eat much, have them not so frequent as others.

At what Time Men are nigher to their Original, at that Time the Strength of the Heart doth exsuperate

rate all the Vessels of the Heart; because then they grow more, and the Vessels are relax'd more. In Women, because of their sudden springing up, so that the Vessels are so relax'd or widen'd, when about that time they are wider, lengthen'd, and determin'd for the *Uterus*, this is a *Plethora*; thence to a lesser Resistance of the Vessels, than with the other Parts of the Body; for in the *Abdomen* the Vessels are laid very open, especially in Women, they are more soft and loose than they are towards the *Integumenta Abdominalia*, and the *Musculos Abdominales*, as *Anatomy* informs us. It is shewn more in the *Pelvis*, (or Balon) where is contain'd the *vesica Urinaria*, and the *Uterus*. And the *Pelvis* in these Animals are greater than in Men; viz. in Women also nothing in the *Pelvis* doth withstand the *Uterus*, which is very wide, open and loose. There is no Place in the Body, where the Blood is collected from divers Places into one with so great a Plenty as in the Womb: Injections shew it.

A twofold Remedy is determin'd to the *Uterus*. 1st, To cause all the Vessels to grow large. The 2^d is, That the *Liquidum Venosum* should be extended from the beginning of the Veins unto the Heart. The Vessels swell and grow big with Laxation, which is made by all Bathings or Baths. Hence Plethorick Women being let down into a Bath up to the middle of the Waste, the Vessels are loosen'd and swell. 2^{dly}, It happens by all Heat. 3^{dly}, With many Kinds of Unguents, which consist of the Fat of Animals, or with oily Things express'd, and with Aromaticks apply'd to the Twist, (or Groin) down to the Knees and Feet. Thus all Emplasters that loosen and heat, which are in the Nature of a Bath. Hence sometimes we order that in warm Water both Morning and Evening to bath the Feet, and to cast in a little *Sal Ammoniack*,

moniack, or Soap may be made use of, which may penetrate to the very lower Parts ; for they swell and become big, and are more heated ; on the contrary, the other Parts of the Body grow cold. Hereupon the Blood flows with greater Plenty to the Parts beneath, *viz.* to the *Filiacos* and *Crurales*, and afterward returns into the *Uterus*. 2dly, An Oyntment call'd *Martiatum Unguentum*, apply'd to the Nerves, so afterward to the Feet ; and let the *Inguina* be bath'd with it, or anointed, or an Emplaister may be apply'd to the Feet and the *Inguina*, of *Galbanum* and *Mellelot*. The very best of all is Rue, Savine, *Lignum-vitæ*, Marjoram, Pudding-grafs. Baths are made of these, Unguents, Emplaisters, that heat, &c.

THERE are three kinds of Causes that increase the *Menses*. The 1st is a *Pletthora*. The 2d is a Derivation of the Blood to the *Uterus*. A 3d is an Excretion of it thro' the *Uterus*. Hence the Medicines of the 1st Class procure a *Pletthora*. Of the 2d Class they do determine for the Womb. And of the 3d Class, to the *Uterus*, or Uterine Vessels, or topical. These very Medicines are proper for a *Pletthora*. 1st, The Causes are to be judg'd of, and the Effects produc'd of all that predominates, which may be by Meat or Drink, or by the Strength of the *Viscera*, or whether it comes of the Chyle, how necessary it is in repairing Things amiss, or by the Increase of the Body : This may suffice. 2dly, Every Medicine which increaseth and corroborates the *Vasa Secundaria*, and *Vasa Sanguifera*. 3dly, It creates a *Pletthora absentia causarum diffiantium*, and is also an Attenuator of the *Sanguinem Confectum*. Those Things (or Medicines) which generate a *Pletthora* by increasing the Strength of the *Viscera prima*, by the

the discharging of the slimy *Fæces*; which being discharg'd, they do expell by a stimulating Force all the *Viscera* thro' which they transmit their Bodies to the Glandules, secreting a *Mucus*. These were spoken of before. To what any thickening Medicine adheres, or sticketh to, obstructs the minutest Vessels; whereupon the Body is emaciated, and decays with a *Morbose Pituita*, (or a Flegmatick Distemper) for these are Loosening Medicines, which being cast into the Body, and loosen'd with the Heat, or the Liquids, do mingle themselves with every Part, they do relax, or dissipate: which cannot be done, unless the *Viscera* do more withdraw themselves: Such are all Gums *Uterine*, (as being of the same Nature) express'd and commend-ed as *Emenagogues*. These Gums have an acrid stimulating Vertue, saponatious, dissolving, and somewhat of Flegme; such are *Gum-Ammoniack*, *Assa-fatida*, *Bdellium*, *Sagapenum*, *Opeponax*. The Effect of these is good in Hysterick Women. A Liquid being mingled, and stimulating the *Viscera*, does not operate by a Power or Vertue appropriate to the Womb, as some did believe formerly.

LET us be careful of a Woman who is without her *Menstruums*, 1st, is taking *Gum-Ammoniack*, *Galbanum*, *Myrrh*, *Sagapenum*, āā one ℥, with Oyl of *Amber* rectify'd one Grain, all made into Pills three Grains. Let them be taken every Day, one every two Hours. It is good also for Hypondriack Men. Hitherto belong all fix'd Salts; as *Tachemaback*, and all Alcalines fix'd. These only are accounted injurious, because they dissolve too soon. Salts fix'd compound, as *Borax*, as well *Venice*, as native *Tartar vitriolate*, Salt of *Policreston*, *Sal Ammoniack*, to one ℥, dissolv'd in Rue-Water, about four ℥. Let them take a Spoonfull after every Pill. All volatile alcalious Salts whatsoever, nothing of Hurt is in them; as

Daniel

Daniel Cox, our *English* Physician, doth shew in his first Book. Every Sort, or Kind of *Sal volatile Oleosum*, doth hitherto belong, which being dissolv'd in Water, are call'd Spirits; for they perform far more than the fore-nam'd Salts; for these consume and burn up the Distempers; and being apply'd to the smallest Degree of Heat, they are scatter'd in the Parts within, even to the wasting and consuming of Nature. All Soaps hitherto belong. Hence some observe that Soap is so precarious a Thing, that it cause an Abortion, if not skilfully apply'd; it will also bring down the *Perfluvium Genitale*. Let her take of *Venice-Soap* five ʒ, of the Flowers of fresh *Bulbus* one ʒ; it is very sharp and volatile; and take *Assa-fatida* ʒβ, of which make Pills of about three Grains, and take one of them every Hour.

3dly, EXPULSIVE Medicines are Aloes, Rhubarb, *Colocynthis*, *Jalap*, *Sagapenum*, *Opoponax*, especially Briony; Aloes is of such a soapy Body as a Cloth may be scour'd, and wash'd with it, and 'tis of an expulsive and loosening Nature, for which this is of great Use, R^x of Aloes ʒj of *Jalap* 15 Grains; it stimulates, and it sticks fast: *Colocynthis* five Grains, make a Dose of three Grains, and take three Pills about Morning, and at going to rest at Night. But since it is manifest, That Relaxers are great Impediments of the primary Passages, such Medicines are to be given, that have Virtue and Strength to quash that relaxing Power. Those may be sought for, which were spoke of before, that are endued with the Strength of Attenuating, and with the Power of expulsi^{ng}. An Attenuation happens either by a diluting Medicine, or by a consuming gradually with the Admission of a qualify'd, and due Liquid. Diminution and Attrition is made by a contractile joyn'd Force and Strength

Strength of the *Viscera*, and becomes stiff in the Fibers, *Inducta roborantia*, these cause *Astringents*, as Practice shews. These are those which corroborate the *Mucus*, flaccid and inert Fibres, as chiefly your *Chalybeats*, which excite the *Pulsum Liquidum*, and render the Urine of a palish Red. Steel coagulates the Blood, if it should be mingled with it, but it operates as being dissolv'd in Water vitrioliz'd, corroborating, Purging the Fibers, and Stimulating the Vessels with a Heat increas'd; it is prevalent when alone the rigid, or strong Force of the *Viscera* is deficient, and the *Mucus intestinalis* falters: And this *Chalybeat* Preparation does not profit always; of which notwithstanding the common Rumour, it is a Medicine little as failing, as the *Cortex Peru*, in Intermittent Fevers. A 2d. Medicine is the *Peruvian Bark*, given in any Form, or in a Case, or Calamity, where Women languish and decay after a Debility of the primary *Viscera*. A 3d. Medicament, *Rhea*, both *Pontick* and *Barbary*, which are given when we must corroborate the *Vasa*: Hitherto belong *Tamarisk*, *Capparis*, and other compound Medicines are made of it. These Medicines are happily given where an Acid is predominant, and there is no Thirst, and desire of improper Things, (as in a *Pica*) sour Belchings of the Sick. R of the Filings of Steel well pulveriz'd ʒij mix'd with *Rhea*, with the *Cortex Peruviana*, F. *Massa*, and fermented, and let every Pill be made up 5 Grains, and take one every two Hours. The Use of these will invigorate the *Viscera*, and convert the Food into Chyle, and propulse it towards the *Lactea Vasa*: But if an Acid do not abound, to give *Chalybeats* does injure them; and *Angores* and *Vomitus*, and a *Diarrhea* ensueth, because it is not dissolv'd, yet it pricks the Fibres; therefore given dissolved in two Pints of Rhenish Wine of Steel

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1 $\frac{3}{4}$ dissolv'd, which taken twice in a Day, one Hour before Meat, that you may be stout, so Motion is to be procur'd by Medicine, which is made with all *Aromaticks*, especially distilling, or dropping an Oyl, in a Distillation, sharp and quick Medicines, *Arbor vita*, or *Thecua Theophrasti* lendeth forth a very sharp Oyl, it prevails in provoking the *Menstruums*. Saline ones which cause Abortiveness, are Rue, especially Mountain, *Lavendula*, *Matricaria*, *Chamæmelum*. Plants that yield an Oyl not Acrid, are not Uterine; as Fennil, &c. Medicines that increase a violent Spitting of Blood, are increased by the *Oscillatorious* Force of the Blood; which depends plainly on the Strength of the Solids. The Strength of the *Viscera* being increas'd, these Things do promote them; wherefore we must exercise the Body with Frictions from the Feet up to the Groin: These being perform'd every Evening, then rub yourself with warm Cloths from the Twist to the upper Parts.

CLASS 2d. After a compleated *Plethora*, there are those which take away, or remove a Resistance in the *Vasis Uterinis*, and in other Vessels of the Body they do increase it. 1st, These promote the *Sanguinem Venosum*, they take away a Resistance to, (or about) the Heart, that the *Sanguis Arteriosus* might flow with a greater Plenty and Force to the *Uterus*; then of Necessity must the Vessel swell up and grow big, and the *Liquidum Venosum*, being receiv'd to the Vessels, it may be more swiftly mov'd towards the Heart, the Vessels grow big by relaxing: Henceforth is the Largeness, or Capacity of the Vessels augmented. *Balnea* perform the same Thing from a Saline Water, and from an *Aromatick* Water by (the Help of) Herbs. 2dly, All Heat being apply'd with a greater Excess, than to other Places, many Kinds of *Unguents*,
either

either from pinguous *Aromaticks* or *Salts*, are Conquerors here. And where the Veins are bare and open, they excite greater Heats and Laxations; so likewise do all Emplaisters, said to be Relaxers and Heaters, whence proceeds a kind of slender Bath, and in the same Place is encreas'd at the same Time: Hence if we would know how the *Menstrua* alone has not its due Course, 'tis because the Blood to the *Uterus* is not determin'd. Bath the Feet up to the Knees Morning and Evening in Water, or with Salt put into it, or with *Ammoniack* Salt; if needfull, with stronger; then let Urine be taken with Soap; hereupon the inferior Vessels grow big, but the superior are constring'd, and bound up, whereupon the Blood flows more to the inferior Vessels, and on both Sides to the *Uterus*, a Heat or Warmth. By the same Reason are made *Unguents* from the Relaxers of Animals and Vegetables, Oily, Saline, and Aromatick, as said before. As the *Nervium Artanita Agrippæ*. Being anointed after Bathings, *Emplastrum* of *Gummi-fatidi*, apply'd to the Hollow of the Feet, and the *Sinum Inguinum*, *Emplastrum Melelotum*, of *Cumine*, &c. Rue, Savine, *Marjorana*, and Aromatick Baths, Fomentations, Cataplasms, and *Unguents*, are made up of these Medicines, for forcing the Blood from the *Arteriis Coliacis*, into the internal Veins. All Frictions and daily Motions, are in this Case more usefull than violent ones, or any Jumping, or Running Motions whatever. The *Vasa Uterina* being fitted and prepar'd to excrete the Blood. If Doctors would but consider Women to be *Pthibicæ* and *Hæmopticæ*, few would escape without Cure. When the Blood is convey'd to the Lungs with too great a Plenty, they gird and bind up the Vessels; whereupon Mischiefs ensue. *Uterine* Medicines are such as procure this Disposition in the Vessels, that

that a greater Resistance may pass off, and the Fibres may be loosened by it. 1st, Vapours of Herbs, Decoctions of *Uterines* above all Things. This Remedy does the most good; for by this Means the Vessels being too dry and bound up, are relax'd. 2^{dly}, Fomentations like to Sponges, or Napkins, being apply'd to the *Hypogastrium*, the *Os pubis*, the *Inguina*, *Viscera*, and the *Peritoneum*, Cataplasmes, Pessaries, in like manner being apply'd. In these are rais'd an Oyl, light, not *Aromatick*, by Reason of the Vapour of the Fomentations, &c. 3^{dly}, Is had from somewhat acrid Medicaments, as the Vapour, or Steam of watry Things may be appointed, and ordered, as for Example; the Womb being swell'd or puffed up, a little of these mix'd with Water, because they excite great Flatulencies, Gangrene and Cramps, in the Nerves, in great Plenty when administred: Hence others may be; which are *Aristolochia*, or *Biribworth*. *Ecbolic* Medicines are term'd them that propulse the *Secundinas Reliquias* out of the *Uterus*: They are said to be the same, but stronger ones. To these are added Sternutatories, the most forcing Medicines are the Abortives, which open the *Uterus*, and expell the *Fetus*, and cleanse the *Placenta* of too much Blood. These are call'd acute Medicines; with these the Blood flows too much, and they break the *tenera Placenta*. Too great a Motion doth the same. See *Morveum Medicamentum*, such an universal Medicine, which is noted to force the *Fetus* and *Faces*, (or After-Birth) out of the *Alvus*.



C H A P. XXXII.

Of Medicines Aperitive, and Discussive.

IN a vulgar Citation these are known to be those Medicines which do loosen the Passages that are shut or stopp'd up. What did stop, is to be taken away. In all the Medicines express'd, that which operates upon the Fluids and Solids shall be unfolded, and laid down together. Therefore every *Aperitive* Medicine, is 1st, That which looseth the Solids. 2^{dly}, That which attenuates and dissolves the Liquids. 3^{dly}, Those which move the *Vasa Laxata*, and *Liquidum attenuatum*, and procure Motion, as E. G. if a Stone sticks, or lies in the *Uterus*, where there is a real and true Obstruction; then 'tis requir'd there that the Vessels should be loosened, the Body (seeing the Stone can't be dissolv'd) should be diluted. If a Man be scabby all over his Body, the Vessels are to be relax'd, that the Liquid may be made ready, loosen'd, diluted and attenuated; but if it should be Acid or Alcalinous, an opposite Medicine should be given, and afterwards the Person should be set in a Bath; whereupon Perspiration is restor'd. Then those Things that promote and cause a Motion, as Water Germander, Horehound, are experimented by Authors to be *Aperitives*; but are obstructive if the Vessels are not relax'd, and the Matter contain'd is not render'd passable.

By *Discussives*, is meant that which dissipates the Liquor in the Vessels, or without them, being coagulated or stagnated; as a Tumour might go off either with Solution contain'd in the Membrane, or Vessels. Relaxing Medicines are distinguish'd from Maturizing, and Suppurating, like as from a

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Pletbora; it stagnates the Liquid, which is for the most part in the greatest Part of an Artery, the great Force (or Attack), thence ariseth a Tumour. Evacuation alone, from *a tergo*, doth cure them, and such Humours spontaneously vanish. The Veins are in like Nature by an Inflammation, and then are they search'd into; there is one indeed that loosens the Vessels, variously loosen'd it moveth inwardly, *M. S.* afterwards by soft and gentle Frictions, as when the Vessels are loosed, are these following. 3dly, Thro' whatever revulseth or throws open the Liquids, from thence a Liberty and Freeness is granted to the Vessel to contract itself. 4thly, Whatever stirreth and moveth both the Vessels and Liquids together, promotes also Motion.

A Tumour cometh likewise from the Liquids being coagulated, and *Aperitives* are here advantageous. Of which, *Vide Acta liquida extravasata, quæ Cava natum facta extra vasa continentur.* And all that is here to be done, is to reduce or bring back again within the Vessels; as this may be done, the Vessels being press'd with Liquids, we must do it so as they may absorbe the same Liquids; and seeing the Cause of it is a Compression, or Squeezing, *M. S. non contra inducitur*, or the Use of *Hydrogogues* in this Case: In weak Bodies these *Hydrogogues* do not debilitate; from whence, with these they grow robust. Somewhat of a Purging Refine dissolv'd in Spirit of Wine, such is a Remedy in Apoplective Cases, *Ascites*, *Hydropick*, *seroti pectoris*; Other Remedies are all *Aperitives*, & *molimina externa prementia corpori apposita*. Whence 'tis plain that *Discussives* alone extend themselves *ad limites præscripta*.

CHAP. XXXIII.

Of Emollients, or Astringents, or Corroborators.

BY those is understood to soften and mollify every Thing which becomes hard, and reduced in one compacted *Moles* of our Body into the State of a Solid and a Liquid. 1st, A Liquid is very strongly forc'd, and the Vessels not broken; as the *Vesica Urinaria* may be repleted to the greatest Capacity, altho' it may be the Urine shall then have the Action of a solid Body; but these are dissolv'd in Aperients, Discussives, and those that promote Motion. 2^{dly}, It cometh to pass by Exsiccating, Coagulating, and over much Concoction, whence the thinner Part is express'd out, and the residue, or what remains, is inspissated, and the Vessel grows hard, and the Liquid is concreted with the very Vessel; afterwards we have the Vessels with their Liquids *solidescencia*.

EMOLLIENTS, are either externally, or internally apply'd; and those are thus given; as a Clyster to the Intestines, *Uterus*, or Bladder. Let it be with pure Water warm, just in the Nature of our Body; it dilutes and attenuates in respect of the Liquids, but softens in respect of the Solids. The Vapour (or Steem) receiv'd at the Mouth and Nostrils, is very proficuous; likewise in the *Uterus* for a *Schirrus*, is better than all other Medicines. The Broth of some Animals in the *Mesentery* and Intestines, they may give *Emollients*, the prime of which is the Yolks of Eggs not boil'd, but raw, which have nothing of an acrid Nature in them; They mightily loosen: All Gums and Resins, as they may flow in Water. All Decoctions of soft Meals, which being strongly press'd, afford an Oyl like that

Almonds; as Rye-Meal is wonderfully emollient; Wheat, Oats, and Barley, perform the same, artfully apply'd; Decoction of Buck-Wheat, of Almonds, Pistach-Nutts, the greater and lesser Cold Seeds, Poppy-Seeds: From hence comes a diluting Water and a Soap. Farinaceous, and mucous Herbs with a Clamminess, bringeth Abundance of Oyl, not of an acrid Nature, as do the same Seeds before express'd yield the like; all Mallows, Marsh-Mallows, Bismalve, and Bear's-breech, are great Emollients; Butcher's-Broom, Pellitory (or *Muralium*) *Mercurialis*, Violets, Liquorish, Poppies, Lychrisis, being saponaceous in every inflam'd schirrous Distemper; these conduce much in suppurating. A Decoction also of Fruits alike in Sweetness, Sebestens, Grapes, Currans and Figs; the Juice of Plants that are saponaceous, the Syrups of them are not acrid: Oyls fresh drawn from them, are for the most part of a good Taste; as of Almonds. A Decoction of Mace, of Cocoa of *India*; as also of Poppy, Henbane, Olives, Hempseed, Wall-nutts, Cream of Milk, and a Decoction of fresh Butter.

ABOVE all *Emollients*, are these following: Steams (or Vapours) Cataplasms: From these proceeds an inward Sympathy in the Parts; Unguents, Baths of the Dew of a Cataplasm, Embroches, or like to the dropping of warm Water; a hot Vapour of a living Animal, or from one newly kill'd, as of an Ox (or Cow) just slain, the Vapour (or Steam) is very profitable; if apply'd to any Thing that is grown stiff, or harden'd. It never doth any Injury to the Limbs, or disaffected Part.

ASTRINGENTS and *Corroborators*, are so nam'd, because they have a Power of Constraining the Fluids and Solids together, that they may not hurt the *Officinium* (or Function) of the Body: Such Medicines

dicines are Fruits sharp, ripe, shrink the Fibres, being mingled with the *Serum* of the Blood, and Milk, they constrict them. Those may be annex'd which are spoken of, as Constraining the Solids, Incrassating the Fluids. And Indurators are the very same.

C H A P. XXXIV.

Of Detergents, or Cleansers, Erosives, and Mundifiers.

DETERGIVES are those which have the Use of the former Medicines, the Strength whereof is as being apply'd to the Body; those which stick to the Body by a disagreeable Tenacity, so they free and discharge from Adhesion, as it may not alter the Body to which it sticks: As if a Clot of Blood, stiff and stubborn, should stick in a Wound or Sore, it may be loosen'd with Medicines of a near Alliance; this is to deterge and cleanse it.

THIS Tenacity is oily, gluey, semi-balsamick and gummous; therefore these Medicines have Strength and Force to dissolve and divide any stubborn Thing, as if it was diluted with Water. All saponaceous Things perform the same. Very strong *Lixivium*, being Alcalinous, ought to be very affectionate and agreeable. Saponaceous are divided into two Kinds, viz. Juices, as native (which are not artificial) Detergents, or Cleansers, the chief of which are Aloes, Honey, Manna, Cassia extracted out of the Canes, Sugar, all Milk sweet and new; as also Lettice, Cichories of all Sorts, *Zorzoncrabilis*, or Viper's-Grass, in Ulcers that are glutinous, is very fine and healing; as is Soap of *Venice*, *Sapo*

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Sapientium, Mercurius Mercurisatus, Mercurial Unguents of *Sennertus*, a Tincture of Mercury with the Spirit of Wine, and Soap from Alcalines, and being made oily, the Yolk of an Egg mix'd with a little Wine, hitherto belong. Emundants are those which do scour and ablute at the same time: On the other hand they purge out what may stick fast to, and wash away the Dregs; gnawing ones remove not only a stubborn Thing that sticketh fast, but the *Ramenta* of the Vessels being half corrupted and spoil'd, because that Tenacity affixeth and fasteneth itself, and it is imagin'd to deterge, scour and mundify them at the same time. This is the most excellent Use of these Medicines.

IN the 1st Place are therefore *Ἀεθλπνία*, 2^{dly}, Are all Attenuators, Resolvers, Exciters of Acrids, and dissolving the Liquids; as if *Ulcers cocaëtica* should appear, which may remain above in the Fat; because they are hardly cur'd, by reason of the Fat, and divers Glandules that spoil one another.

ALL *Mercurials* with an Acid are gnawing, of whatsoever Sort they are of, hitherto are referr'd; such are Mercury with Oyl of Tartar, as a Corrosive into a white Precipitate, and Turbith Mineral. With this Ulcers are cur'd, if they stick not to the Bone (or the Bone is carious); but if they can't bear with Mercury, because a foetid Smell ariseth from it, from the Resolution of the Oyl; it may be effected some other Way; as by a volatile Salt, by Spirits of Urine, into which the Filings of Iron, or Copper is put, shall become a Corrosive, when afterwards it may penetrate to the quick Flesh. Ulcers cocaëtive we must dilute with Water, or *Elixir Proprietatis*. And this is the true Fundamental of Concoctions, unless the Beginning be evil.

C H A P. XXXV.

Of Warming, or heating Medicines.

THE proximate Cause of all Heat is, an Aggregation (or gathering together) of the most subtil, fiery Elasticks, being the prime Elements of the small Bodies, as the greatest that move towards their Centre, or Superficies of any Thing said to be Hot, and consisteth in it, as that Body may be touch'd by others in the Superficies, in that same Place. The foresaid Particles may be gather'd together and retain'd, from thence that Body is call'd hot, but it is requir'd too besides that, as no other Particles can enter in, besides those greatly Moving, and Elastick fiery Particles, and from these chiefly Elastick, exciting a Warmth, or Heat in our Body; all Actions intirely, in whatsoever Part of our Automatical Body, these may touch and light upon, and may depend on, and therefore are greatly requisite, when as nothing without them can be perform'd in us, therefore our Life and Heat walketh with an equal Pace in the internal Parts, and by how much more that natural Heat is increas'd, by so much the more lively are our Actions; but when that utterly ceaseth, and is destroy'd, Death puts a *Remora* to Life: And therefore in a Microcosme all Things are perform'd with the Action of Fire, for thus in a Microcosme all Things are made, the Strength, or Power of Fire being increas'd, or diminish'd.

OTH^ER Medicines which do increase an internal Heat, are *ist*, either those causing Heat extrinsically apply'd; for through external Heaters intrinsick Heat is augmented. Therefore every Body grows hot, because it hath this Etherial and Elastick Fire in his own Centre, which touch-

eth superficially, and excites, and causeth Heat; therefore all external Heats being long time applied to an internal, communicates his own Heat to it: Hither belong Frictions with *Unguentis*, &c. We grow hot, and are warm'd by the external Heat of it, the Effects are upon the internal Parts, Motions and all Actions are by it increas'd, and are more lively and vigorously perform'd, by Reason a greater Motion induceth, making a Force upon the Liquids, we must expect all Operations are perform'd by Heat. 2dly, Our internal Heat and Warmth, is increas'd by the Causes communicated within it, which Causes do mutually operate and re-operate, (that is, forward and backward) within themselves. Hence these Parts internally, by this mutual Attrition, do draw up and retreat of themselves, one after another, and so by Motion they wax hot. Now the Parts that make the approach, or draw up, are either Solids or Fluids; and whether Solids upon Fluids, or Fluids upon Solids, or Solids upon Solids, may thus ebb and flow upon each other; they rather wear one another out, and consequently, a greater Heat is made by it. As this is manifest in the Blood, by the Motions of the conjunctive Parts, &c. A *Calor* thro' the Action of a Solid upon a Solid, may be from the Motion of the Conjunctives; for as the more they pass and repass within themselves, so gradually by so much is the Heat made still greater, and by how much the *Functura* is mov'd and stirr'd, by so much the more the Liquid of the connex'd Particles is drawn out; for a greater Transpiration is made in the Motion, and that Liquid being separated in the Glands, consisting in an oily and glutinous Nature, and it is of a saponaceous Nature; these Fluids in Motion, are not rather heated; but a *Calor* (or Heat) shall be augmented by the Action

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on of one Solid upon another. Those Liquids are only in the solid Parts, as they may lubricate the Junctures into Motion, and consequently do facilitate the Heat; for if that Liquid be exhausted, by Consequence both Heat and Motion ceaseth; but if they should become too gross and thick, they will make this Liquid callous, (or hard) and thus they impede and obstruct the Motion; and this may be in dislocated Joynts of a Body, inveterate by long Continuance, *Gibbosus*, lame, halting, &c. if it should become too acrid, it produceth the dolorous Pain of *Artbritick* Persons, altho' the *Podaryick*, *Artbritick*, *Scorbutick* Persons may know, *hoc Liquidum pariter fit*, lest too great Heat might arise from Motion; for by kindly temperating the Heat, or else they may assuage it by lubricating. 2dly, By operating Fluids upon Fluids, they excite Heat; and therefore Fire depends from a superficial Contract of igneous Particles, but it is dubious in the Fluids; for how much indeed greater the Fluids are, by so much the more they operate by Turns one upon another. Moreover, the internal *Calor* is not increas'd, unless first the Liquid of the Arteries be: As for Example, It may operate upon a Solid, *viz.* upon an Artery: And again, A Solid cannot operate upon a Liquid, the Arteries being crush'd and bruis'd. As for Example, In a burning Fever the Blood is made hot; this Heat comes no other Way, for it depends upon an internal Principle (or Power); for if you draw out the Blood, it becomes frigid and chill, and the Heat decays and dies; but from it indeed, the Solids act upon the Fluids, (that is Heat) those impuls'd, do reflect or beat back again; and thus they wear, move, and cause Heat; therefore Heat in a Fluid, depends not from the Action of a Fluid upon a Solid, but from the acting of a Fluid upon a Fluid. Therefore Calefying Remedies, which are receiv'd

receiv'd, thro' Experience do increase or raise a Heat. Those are the *primum Mobile* that move the Liquids, or condense them, or whatsoever do compress them; for the Liquid is in our Body and in the Vessels of it, as it may be constrain'd in the Body: Thereupon a Solid is that which restraineth, or keepeth back; therefore Fluids are those which act on the Solids, and move the Solids; and therefore whatsoever condenseth and compresseth the Liquids, it will be a Solid (Body); and so a Solid operates and moves upon a Liquid. The Air, by how much the thinner it is, by so much the less Heat it receives; *e contra*, the more condens'd, so much the greater Heat it receives: But if there should be two solid Bodies, seeing they are not elastick, and neither may have the Figure of a Pore; upon this as they may receive these igneous Particles, otherwise they cannot become (or be made) hot, altho' a Compression; as the Liquids are elastick, and so by condensing, the Fluids also by compressing, are in the same manner made hot. *Dico ergo.* 1st, These abiding in the same Liquid, and same Vessel, but with an acrid Elastick, an acrid Concretion in the Vessel, will increase an Augmentation of the Projection, the *tritum vas* may remain; the same Liquid by the same Projection is understood of Translation from Point to Point: By *Augmentum* is understood, *Quod tunc plura spatia eodem tempore percurrat*. By the *tritum* (is understood) indeed, *Vim Superficiæ compressivam*, and from thence the *augmentum motus* for the Fluids restrains the Vessels. On the other hand, the Vessels compress the Fluids, and by how much the Vessels did provoke and urge the Fluids, by so much the more it resisteth, and the Fluid shall act upon the Vessels, for they are Correlatives. Now, for Example, if two spherical Bodies, being frigid Bodies; and, indeed, as they

they be mobilous, may rub, or be rubbing one within another by Turns, and by the Contact (or Touch) shall be made hot. Hence we do see, that the first Body, by how much it provoketh a second, by so much more likewise the first is provok'd by a second; and in the like Nature it happens in the Solids and Fluids of our Bodies; for so long as the Solids are compress'd, they urge and provoke the Fluids, so much by Vicissitude the Solids are provok'd by the Fluids; for that Reason the Fluids are so much condens'd, by so much the more they act with a greater Motion. Therefore from this (or by this Means) increaseth Solidity, and the *tritus* is augmented, and by sequel a *Calor*; therefore in our Bodies, if the Fluids should be the same, that is, the Blood might be the same, and is constrain'd by the Vessels, or the Heat is constrained by the Arteries.

IN the 2d Place, whatsoever (I say) hath a Power so volociously of acting thro' the Vessels, shall augment the Heat (or Hotness) of the Liquid. 1st, Therefore, of those that are Heaters, and which compress the Solids, and stir up or move the Liquids; but this *Calor*, and *Tritus*, are the same; therefore all Aromaticks, Salinous, Acrids, Olinous, Spiritous Things, are Heaters, because they greatly move the Flux of the Liquids. Spirit of Wine is hot, and causeth a Heat, because with it, it stimulates a Solid, and increaseth the Motion of the Liquid; but if it be taken in too great a Quantity, it condenseth the Liquid, and dries up the Blood, whence arise Apoplexies; but the Stimulation of a Solid, or of the Vessels and Motion of the Liquid, whether or no it increaseth the Heat of the Blood; therefore the Fluids remaining the same, as in the same Vessel. Moreover the Motion of Projection being increas'd, the Heat is increas'd; if the Heat is increas'd,

increas'd, I apprehend the *Tritum* to be increas'd, or the Projection. From hence we must study in all Diseases when the Heat riseth too high, (or sinketh too low) but the Violence of Projection may be stopp'd, to quench the Heat.

3dly, THE same Vessel remaining, and the Velocity of a Fluid thro' the same Vessel; but the Liquids being made more thick and gross, remain moveable, (or retain Motion), 'tis plain the Heat shall be increas'd in our Body; as by a greater Strength one Body rusheth and tumbleth upon another, by so much it attempteth to alter the Body; and so more by Course it moveth and removeth one another. 1st, Indeed this Strength (or Power) of Mutation, by the Multiplication of the Space run over, and the *Moles* being increas'd, the Strength necessarily must be increas'd. Hence the Strength of augmenting grows (or increases) if they be greater, and if the same Velocity abideth, by that reason a Vessel shall so much the more act, by how much it is compressed by a Fluid; therefore the *Tritus* and *Calor* is increas'd. If the Liquid is condens'd, it becomes greater in the *Moles*, for that Cause the Heat is increas'd by the *Moles*. Whatsoever therefore does condense the Liquid, if the Velocity and mutual Action of a Vessel and Fluid remains, Heat is also increas'd, and these are call'd, Condensers, where in the Precedents we have spoke of them already. If, I say, Fluids are condens'd, the Motion remaining, by (or in) the re-acting of a Vessel, hereon is Heat increas'd. 1st, I shall treat how Cold acts; if it may not wholly suppress the Motion of the Fluids, it will heat or warm the same Body, if Motion remaineth, then the more a frigid Body is remov'd, by so much the more it grows hot, if the Motion of a Fluid may not be suppress'd by Cold; for it may be accounted of an ambient acrid (Body).

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The Body in the Winter is not in itself cold, as it appears in *Thermoscopio*, as in the Summer-time; but in respect only of an acrid ambient, in the dead (or depth) of Winter it oft-times grows more hot. Therefore, I say, by the same Velocity of Motion Heat is increas'd, and the Condensation of the Liquids is become greater, and the same Vessels remaining; for the Action and Re-action of a Liquid upon a Solid thro' Condensation was increas'd, if I might know by some Experiments, because the Blood in the same manner moves (or is mov'd) so swiftly, and there is no external Heating Cause, then I am certain sometimes that there is a Density or Thickness in the Fluid, because it is either increas'd by Violence, Compression, or by an augmented Density; if the Velocity is not increas'd, *si tunc agendum Frigefacientia*, then they are Heaters, or such as render the most heavy Particles that run between in the Liquid more, they rather make them more rigid and stiff, and in such manner they increase the *Moles*.

HENCE all Cold causeth Heat; wherefore from Cold, *Idem sensus, tritus sentitur* in Motion or in Summer. This is the Opinion of *Hippocrates*, where he affirms, That our Bellies are hotter in the Winter-season, &c. I say lastly, That *aqua ambiens est summum calefaciens*, that is, the ambient Water is the greatest Heater. For Example, If any one be immerg'd into Water, he perceives himself frigid and chill, if he remain a long time in it, he perceives Heat; if again he is taken out, he thinketh the Air to be colder; if one Part should be put into Water, in that Part he perceives Heat, the rest of the Parts he findeth them cold. This is known in our *English Baths*, where if one Part only be put in, then the other Parts be as it were in a Fever; but remaining in the Water they were made hot.

hot. Therefore the Effects that may be in the Water are infinite, and for that Cause, it is a very great Loosener, *viz.* if the external Pressure in the other Parts is not too great. Hence follows, that external Coolers do thus act sometimes by binding up the Vessels. Therefore in all Men that emit Blood at the Nostrils, the Reins are to be girt, and bound up, and the Body, (as *Lowerus* said before) is to be loosen'd. Besides all these Medicines which are heating, by stringing and binding the Body, are all such too that contract the Body. This is a subtle Matter, as already declar'd in speaking of the Solids. If hither all Medicines were apply'd *ceteris paribus*, they will be Calefiers. Hence whatsoever bindeth, whatsoever does come to one in the Nature of a Plaister, whatsoever does anoint, and with a kind of Oyl, by stuffing the Body they obstruct the minute Vessels; but it shall not be altogether Heating. If the Vessels are not constring'd (or bound) then the *Attritus* of the Particles may act upon the Solids with a greater Force and Strength; for the Liquid is dead if it happens without the Vessel, and the Solid is dead if it be broken or destroyed. Wherefore if we would raise a Heat, we should apply Aromatics, Balsam of Life, &c. which before were spoken of, and their acting on Bodies, *his positis absoluta & matris calefaciens*. If this Velocity (or Swiftnes) and the same Liquids remain, 'tis understood that the Heat is increas'd, as the Vessels are become more narrow and strain'd, 'tis a *Signum* of it; for it is suppos'd, the same Velocity, and same Liquid do depend, the Heat being increas'd, *ab arctiori diametro vasis*. Wherefore the Liquids being spent and consum'd, the Heat may then perform many Things in liquid Bodies. An Objection is made of Hectick Persons, Phthisical, or Tabid, or Consumptive, in whom the Density is diminish'd,
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and Liquid consum'd; and then they notwithstanding grow hot, and so all Hecticks are set at Liberty. 1st, How they should grow, seeing they are dry'd up, whereupon the Ancients call'd them, *χέζουδαρ*. 2^{dly}, All Hecticks being exsiccated, if they fall into a *Marasmus*, then they have rigid and stiff Fibres, being condens'd and sunk, *hoc facies Hipp^{us} monstrat*. If the Liquids are already exhausted, the Solids may continue the same; then there is seen no stiffness of the Fibres, nor any falling or decaying; the *Signum* is, That the repairing of a lost Solid and Liquid is not to be done; and thus is a Hectick consum'd, and those that were formerly extended by a Liquid, shall not be collaps'd, but rather contract themselves; and because every larger Vessel consists (or depends) of the minutest Parts, therefore the Liquids being exhausted, all the Vessels are made more streight, and clos'd up; and we perceive how greatly the Number of Contacts is increas'd, and the *Resistentia* in a Vessel not as yet loosen'd according to the Quantity of a Liquid, so much more is the Heat increas'd. Here indeed is the greatest Coarctation of the Vessels, so as the Sides do even touch one another, *ideo unica sanguinis tantum*.

Now it may be brought to pass, how much otherwise in extending the Vessels $\propto x$, if the Superficies of the Contact should be always increas'd, as in Hecticks, so long as the Oscillatorious Motion is present, the Heat always increaseth; sometimes it resteth, or is at a stand; but if the Velocity and *Moles* should be increas'd, both remaining in the same Body, Heat will increase in it, the Heat by a compounded Means within itself; for if the Strength (or Virtue) of two Degrees should be put into one Body, and in another a third, so as that Virtue, (or Power) might be multiply'd within itself, it will
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be a compounded Cause. On the other hand, if the Velocity and *Moles* is increas'd, so will the Heat too, if an Arctitude (or Straitness) of the *Vasa* should be added to the Velocity, the Effect will be multiply'd; but if the increase of all three together should be added or joyn'd to the Velocity, the *Moles*, and Arctitude of the Vessels, it shall be the greatest Heat, as in a Case hereafter: By the Multiplication of these Causes, the greatest Heat, and the greatest Force thereof shall arise; for if a Degree of Heat is found in a Man *ad Thermometrum*, and if in that Body the rectitude of a Vessel, or Velocity, either the *Moles*, or in short all of them, is increas'd, one may know how much the Heat is increas'd in it, and thence may be known how much the *Calor* riseth and falleth.

C H A P. XXXVI.

Of Refrigerating Medicines.

WE understand by *Refrigerating Medicines*, that which being apply'd to the Body, increases the Cold of that Body; for Cold is a Sublation of Heat, or 'tis conceiv'd as it was of itself; because that which is an Ablation of Heat, may make Cold; but seeing the Cause may be *Refrigerating*, which induceth Cold *à Motu*, as from *Sal Ammoniack*, or from any other compound Salt *prius quiescente*, in whom if it is mov'd it stagnates, and the more it is mov'd, so he becometh more cold and chill; therefore 'tis not known, whether frigid Medicines act by the Ablation of Fire; or whether any other Thing, which is positive (or of itself) therefore in either taking away Heat, or by an *Ens positivum*, every

every Production of Cold in us comes by the Ablation of Fire; and the Ablation of Heat is made from Causes opposite to Heat; because if Fire is collected producing a Heat, for that Reason all Frigerators should be contrary to it, or which do remove the Cause. Therefore the Opposites of all are the chieft: As all Frigids *actū* apply'd to our Body. It is call'd *actū Frigidum*, which is demonstrated *ad Thermoscopium Frigidum*, the *potentia* demonstrates that which did not then ascend in *Thermoscopia*, but hath Cold within itself from a Mixture of other Things. Frigids *actū* externally apply'd always causes Cold: 1st, In their own Effect, by so much that the same Degree remaining, so much the more solid they are. Hence the Air cannot make us more Cold than the coldest Water; and if in Winter I should expose my Arm in the sharpest Cold to the Air, I may perceive the very Degree of the coldest Water; but the greater Bodies are in Weight and Bigness, so much the more subject to Cold; as for *argentum vivum*, by how much Water exceeds it in the Gravity and Frigidness; as Baths do rather make our Bodies more frigid. If Salt be mix'd with Water, it does the same, if the Water be pure and clean. Hither belong all Salts dissolv'd in Water, *viz.* Compound Salts. 1st, *Sal Ammoniack*, if it be dissolv'd in Water, it maketh us frigid and chill, whether apply'd internally or externally, or by a Foment, or Cataplasm, and the Cause is the same. 2^{dly}, The Body is cool'd with the Wind, and a Fan, whether the Air blow us or not, or whether we should go against the Wind, we perceive ourselves to be cool'd, in the same Nature as a Fann cools us; whence we think the Wind to be the Cause that induceth Cold: But the Physicians of *Paris* demonstrate, if Bellows fill'd with Wind, were put

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put in a *Thermoscope*, it is not seen how the Air ascends, altho' our Body perceives the cold Wind. And this cometh to pass, because the *Atmosphere* being more hot, remains about our Body; which if it should be deny'd, it may plainly be demonstrated, if the Body full of Sweat may be put in a more cold Air, the Fume (or Smoak) shall be seen to ascend from thence; by reason the *Atmosphere* round our Body is more calid; and hence we think the other *Atmosphere* is more cold; as is apparent why Fanns do only take away our *Atmosphere*. Hence is observ'd, If a Man being vex'd and put in a Passion, cometh to the Shade, he shall Sweat. If Fanns drive away the hot Air, hereupon the *Atmosphere* being colder, pressing and laying hold of our Fibres, expell the Sweat out of the Pores.

3dly, COLD cometh, 1st, by reason of the Rarity or Thinness of the Liquid. 2dly, Because of a lesser Contact between the Liquids and Solids. 3dly, By reason of a slower Motion. 4thly, For the Laxity of the Parts within themselves. Hence is deduc'd, that the Ablation, or taking away of a hot Air, *non conterentis*, is cooling; for if Rest is pass'd over, it may procure Cold to the Body, *Idem facit absentia omnia tritus*, because the internal Cold is increas'd with an external Frigid, *tollendo partium tritum*, or intermitting of the Parts, as in Fainting, or Swooning, (or in the Defect of the Mind) or by fortifying the *Tritus*. And hence this Intermitting depends in us from Motion only, and the contracting of the Liquid; and from this injur'd Part dependeth Health, or Sicknefs. By how much the lesser therefore the *Tritus* is, by so much the greater is the Cold. Therefore no greater Cold can be brought to the Body than by Death. And indeed the Body must suffer great Cold if immerg'd in Quick-silver, or if *Sal Ammoniack* should inclose the

the Body, but then it would not be as great as that at the Point of Death; for a great Cold is said to precede, as that the Body may be a condensed Body; because Water cannot be so cold as Quick-silver contain'd and kept in the Air; therefore that will be a cold Body which is so thick as the *Tritus*, or Intermitting cannot be; and therefore the greatest Term of Cold is in a dead Carcass; but it chanceth in those Parts within the Vessels ariseth Putrefaction; and this oweth its Origin not to the intermitting of the *Motus Oscillatorius*, but to the Intermitting of the delaps'd Vessels within themselves. Hence for Example, If any one full of Medicines should break out in Summer-time, the *quies O-toria* will not continue afterward. This is the greatest Cold of Medicines amongst themselves, and of the Parts, and therefore of a Carcass when it is not yet putrify'd.

I say, in the 2^d Place, That the Vessels and Liquids remaining the same, the *Momentum* or Motion of Projection is lessen'd; this causeth Cold in the Body. Here 'tis suppos'd that a Vessel is made neither straiter nor laxer, nor can get greater or lesser Strength, and can neither lessen the Liquid, or Figure (or Shape), in any manner; but all the same remaining; if the Motion of Projection is impeded, (or obstructed) Cold is caus'd; for when Heat may happen from a *tam exacto tritu*, as no intermediate, (or Space) between; in a manner, can be left, consequently if upon the Motion of the Projection it fails, no longer an Intermitting, (or Beating) of the Parts, it happens so accurate, that in such a manner the Heat will cease with the Intermitting. And this is the Reason of them that swoon away, their Body immediately becomes so frigid and chill. Thus for Example, If a Man at the Aspect of any horrible Thing fainteth away,

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then after the seeing it, immediately follows a very cold Sweat. Therefore this shall be the first Class of those Things that impede the Motion of the Projection; and the Cause of it is allways a solid Body; as if the Heart may not be mov'd, it shall project the Blood; and these are the two Causes of a Solid, viz. 1st, The Stimulation (or Motive) of a Solid. And 2^{dly}, the Action of a Solid; this is Contractibility. Whatsoever therefore lesseneth the Stimulation, and the Strength (or Force) of a Solid, as that it may propulse the Liquid, this will be an Inducement to Cold, seeing that a Vessel may sometimes be indu'd with a greater Stimulation; and such is every Thing that dilutes, inverts, obtunds (or blunts) a Stimulation, expells an Acrid, it constitutes the first Class: It was handled in the foregoing Chapters. Indeed Stimulators cannot act by themselves, unless it be done by Exercise, (or Motion); and in it consists the Negotion, not so far as this Stimulation is contain'd in the Blood; but in a manner as 'tis fix'd to a certain Pipe, and so the *Spiculum* exists in a *Medium*, increases the Strength and sole Power of the *Moles* (or Mass), and so much the greater the *Moles*, the more it fixeth itself to the Side or Part; and so it doth more stimulate and augment the Intermittings, as well as induce a greater Heat. Now if this Stimulation is carry'd off, then there will be Cold: And this cometh by Diluters, as we may observe in the Measels, Small-Pox, and Fevers, and in all inflaming Distempers; so we should endeavour to repulse the *Spiculum* of Stimulation; which may be perform'd by a continual dropping of Water, for as much as it dilutes; and commonly amongst the Diluters, Water indeed is esteem'd the greatest, of all others, for the most part, that are watry ones; and this is in every
Distemper

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Distemper where Colds are discover'd; and truly hot Water is far better than cold, because the hotter it is, the more it dilutes, and inverts: Whey, Milk, and *Hydro-lact*, perform the same, as Milk with a moiety of Water; and all these Moieties are Heating; for cold Water heateth more, because it rather fastens the Stimulation; contrary to hot Water. From whence *Hippocrates*, from a Medicine of the ancient *Egyptians*, did on this account, order hot Water only, or a Decoction of such as is used among us for that Purpose; as the Decoction of Coffee. Therefore whatsoever averts the Stimulation, takes away Heat. By averting, we understand, to weaken the Sharpness, that there may be no more Stimulation. As for Example, If an acrid Matter remains in a Vessel, if the Acridness of it be weaken'd, there will be no more Stimulating; but a weakening, E. G. it is suppos'd that the Blood in a Man is of a saline Matter, and indued with an Acrimony. If I now invert these *Spicula*, that is of an acute Figure, if I make that Figure weak in all Men, I render the Stimulators impotent in all the Parts. Therefore he that knows the Stimulation of an Acrid, by then applying an Opposite, inverts the Acrid, and does obtund it, and immediately brings a Cold on; for to obtund (or blunt) we understand, if the *Spicula* thereof be wrap'd up, altho' they remain sharp as Darts; as if should have a Sword in the Scabbard, the Sword can do no Hurt, altho' the Sword remains still the same: And in this manner do all emollient Oyls. Whatsoever therefore expelleth and extracts the *Stimulum* in such a manner, shall be cooling, which was just now spoken of before.

Now to proceed to the 2^d Class, and those shall be under this Head: All those which invert a Stimulation; and those are such as are opposite

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to any one Particular in Sharpness; as an Acid is opposite to an Alcaly: For in every Acid mix'd with an Alcaly, the Effervescences are appeas'd, and the Matter is made ineffectual. Therefore if Hypochondriacks grow (or are made) hot from an Acid, *Sal volatile Oleosum* will be a Cooler; but if the Acid be predominant to the Alcaly, it shall be cooling. Hence if the Chymists consider'd this Harm, they would not so boldly vend their Coolers for such Medicines, as *Apathum, aceto jam, &c.* in which 'tis a plain Case, that it is an alcalinous Salt; and then they are *Refrigerating*, according to those, it cannot be said of any other Medicine. In short, they are Cooling or Heating, but so far as it occurs that the opposite is predominant, it will be Cooling or Heating, and inverts a Stimulation by its Opposite, because sometimes in one Body an Acid shall be Cooling; for as much as it predominates over the Alcaly, and in another Part it may be Heating, if it meet with no Opposite to it. Thus of all Medicines. And therefore all Medicines Heating and Cooling, shall be all Aqueous. Hitherto belong all saponatious and oily ones; for if in any Body predominates an oily Acid; if there arise from it a Stimulation, then it cureth; because that can absterge the oily Part; but these are neither saline nor watry; but the oily are only saponatious; so as if Urine was as inflaming as oily, it is known to be such an acid, oily Body. Lime prevails upon a briney Distemper; a *Calx viva*, or fresh Lime, if quench'd in Water, and the Water filtrated, it may be potable: It is the best Medicine in a brinish (or saline) Acid; if a saponatious against an alcalinous oily, if it be used, it rather heateth, than that oily Alcaline. Hence the Sweat becomes yellow, and stinketh, just as Urine doth; and from a great Exercise (or using) it pu-

rifies

trifies as it were. Now if these Salts were wholly corrected, then they would be always oily Salts, as *Chymistry* shews by Experience. These are opposite, saponatious Acids, all the Juices of fresh Fruits newly press'd out; as Currans, &c. whatsoever comes to Fermentation are the large ones, as *Chymistry* shews, as long as these Fruits have Juice in them, they contain a saponatious Taste.

3dly, ALL Oily obrund an Acrid, and Gelatinous from Animals, Emollients are your fat earthy Things; if in some Body this Acrid might be touch'd, and so mutually to unite itself, Cold always would arise, as E. G. in those sharp Diseases; therefore we give a good *Priſan*, it hath great Effect, because of its oily Flower, so is the Gelatinous, &c.

4thly, BY expelling, is understood, because it may shake off a Stimulation, and so propulse it out of the Body. And this is done by Exercise, or great Motion; as in very acute Fevers, if a Vomit is order'd, then with the Motion of that Casting, the Stimulation is mov'd by the Force of it; and after the Casting, they always find themselves better, and are become cold, just so are *Catharticks* and *Diureticks*; indeed they heat by a prime Operation. But 2dly, for as much as they have expuls'd this Stimulator, they grow cold. And this belongs to the first Kind of *Refrigerators*.

2dly, THE Vessels and Liquids remaining the same; but if they lose their elastick Force, then cometh Cold. Here 'tis suppos'd in his own Figure, and that chiefly is the Vessel and Liquid; and when it shall loose its Elasticity, that is, indeed, it cannot contract (or recover) itself, it causeth Cold; because as it hath lost its Elasticity, it loseth the Faculty of closing itself; and whatsoever loseth this Faculty, loseth the Faculty of propulsing a Liquid; and what does not propulse, takes away

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the Velocity of the Liquid, and consequently Cold ensues; and this is only by the Laxity of the Vessels; in what therefore the Vessel is alter'd and relax'd, in it there shall be Cold. This is always of them that grow cold, which have a loose Frame. Therefore whatsoever does lessen, relaxeth the Fibres, so that they cannot contract themselves, induce Cold, and so are all Loosners already spoken of. But as we see from the Strength of a Vessel, or by the elastick Force, and from Stimulation, all Velocity depends, is whatever therefore renders the Stimulation inert and weak, as is demonstrated already. Hither belong Bathings external and internal. External, are Vapours thro' the Lungs, Decoctions, Infusions, or Pisans, &c. Therefore such are good in burning Fevers.

Theory 3. IF the Density of the Liquid is diminish'd, the rest remaining the same, in them shall arise Cold: This is thus; As all (the Vessels) are plac'd to remain the same, save that a Liquid may not be too thick, from whence follows a lesser Motion of the Liquid, and consequently a lesser Motion of the Projection, because it hath lost its elastick Power, and so cannot exercise itself; for that is a Density of Bodies sticking in the same Space, the *Moles* (or Mass) being more compact,

1st, IN the Space in it, because the Body cannot be divided within itself.

2^{dly}, BECAUSE in the Liquid the Particles are interpos'd more thick. Whatsoever therefore may divide the *Moles*, it may also tear the more thick Particles, and will cause Cold. Therefore 1st, Are all Attenuators, which take away Density, and separate the Parts; as in all hot Distempers, where the thinnest Parts are dispers'd between the Liquids; whereupon the *Molecule* (or little Masses) are so condens'd by the attenuating Medicines; it may
best

best be help'd, and made much better by taking their Opposites, such as watry Things, in the prime; the Reason is plain, because there is nothing more subtle in our Body than Water, as is perceiv'd in the *Sanctorian* Transpiration, if one thrust an Arm into a Glass Stillatory, immediately the whole Glass will be darken'd. But some one may say, that Spirit of Wine may be set before it; but seeing it may have Power to coagulate, Water is to have the Preference which is the most light; hence by it Density may be abated. Therefore if Heat is from Density, and we know that Water is the only Releaser of Density; hence is drawn

Corol. Aqua Nitrosa, or Water of Nitre, is the greatest Refrigerating Thing, or Divider, that may be; for Nitre infringeth the Particles, and the Simple dilutes them. Hence all Plants consisting of this Nitre, as Fumatory, &c. shall be the best.

Now follows the third Class of Refrigerating Medicines: Which act only 1st, the Velocity of a Liquid remaining, and Motion by a natural Disposition in them; if the Vessels are made more large than before, then ariseth Cold in the Body; and so as all the rest remaining untouch'd, they render the Vessels more capacious, that causes Cold, it may be a Demonstration from the former, altho' the Velocity, if then, the Capacity of the Vessels be augmented, then the *Resistentia* of the Vessels will be the lesser towards the Transfluent Liquids; consequently a lesser Compaction of the Liquids; and where the Compaction is lesser, so much the smaller Appulsion; as this is the smaller, by so much the lesser is the Intermitting; for by how much the larger, or greater, the Vessels are, by so much the greater is the Application of the Transient Liquids; and by how much greater an Application, so much greater are the Intermittings; and then

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then follows a greater Heat ; whereas the contrary may happen here by the Vessels being render'd more capacious, and the Intermitting will be less, and so cold. Hence in a lighter Air, where the *Moles* being more small, the Air presseth the Body, but the Vessels are not press'd, but it follows, they are more diluted, where the Cold shall be greater, as on the Tops of Mountains ; for that Cause would Men go upon the Tops of the highest Mountains to inhabit them, as the *Pyrenean* Mountains, &c. by reason of the great Cold ; hereupon they wore Garments of Wool that might not be cold. Hence since Tempests of Thunder cleanse (or clear) the Air, it always changes it from hot to cold ; for as soon as the Thunder ceases, the Air is very calm and mild, as may be seen in Barometers. Hence all Humecting, Laxating, Deobstructing, and Aperitives, are all causing Cold ; for if a feverish, acrid Body, or pluritick, or peripneumatick Body, &c. when from the contracted Vessels, and from an acute Viscidity, Heat is taken, a moist Body may be plac'd in the Warmth or Heat of a Vapour (or Steam,) or in the Air, and immediately by moistening shall become cool, viz. by such Means Loosners do promote wonderfully ; for if there should be an Inflammation, Heat ariseth, and if Fire remaineth there, this is the greatest Remedy in every Inflammation, as warm Water with Sponges apply'd, but not hot Water with a little Vinegar, to cherish the Parts ; after 'tis apply'd, the Sick perceives his Body to be greatly cool'd. As for Apperitives and Obstructors, they are all Coolers ; for every Thing that cannot pass thro' the Vessels, and is greater than the Things obstructed in the Vessel, *nō meretur*, and this is when it meets with a Resistance in the Vessel, when remaining by a subsequent Liquid, is rather impulsed towards
the

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the Liquids, the same do retire back, and they cause the *Tritus* and *Attritus*, and so by Consequence a Heat: As it is seen when a Finger is bound up, immediately ariseth Heat from thence. Whatsoever therefore moves that Cause, whether Obstructors, or Openers of the Vessels, shall be a Refrigerating Medicine; and such is the Nature of Aperitives and Obstructors. And as they shall be the greatest, yea, the most grateful Remedy in every Disease, if it be only drank, so as to moisten continually the internal Parts, if a warm Steam be drawn up by the Nostrils and Lungs, and Clysters apply'd with only warm Water, and so by externally fomenting the Body under a small Cloak (or loose Garment) so as the Vapour (or Steam) may be in any manner receiv'd, 'twill be the greatest Refrigerator; as in acute, and burning Fevers, the Sick will sooner find the Advantage, than by all hotter Applications, which may procure Rest to the Solids. You may see the *Modus* of Application by the third-foregoing *Theorem*.

1st, I say, if I know the same Velocity remains in a Man from an unknown Cause, the Sign will be to me a Cold; and that Man hath a more capacious-Laxity of the Vessels; and this is seen *per Barometrum*, in the Change of Time. Hence we perceive that all Men are lax, and of a frigid Temperature; as Women are of a more lax Texture, especially the fat Women, as also very fat Men. On the contrary, they are call'd *Atra-bilarii*, who are of a more construct and solid Frame, and are always hot, and by an over-increas'd Degree of Heat, for that Cause they become extremely hot.

2^{dly}, MOISTENERS alone may do good in He-cticks, sometimes in them that are sick in slow Fevers, when the whole Body is exsiccated, they are apprehended to be past all Hope, nothing can do
more

more good, than a Ptsan of Milk, and not of Water, which are call'd Humeſtors, do moſt good, and alſo any Thing that is viſcid, as they may agglutinate, and bind, and ſtick to the Parts. By this continual Food, and by a tepid Vapour attracted by the Nerves and Lungs, the Sick put ſometimes into a tepid Bath, ſhall recover, and alſo receive Comfort.

IN the *Ultimate*, 'tis concluded from a triple *Theorem*, If the *Moles* of the Fluids is leſſen'd, or impair'd, or if the *Moles*, and Velocity, and Arctitude of the Veſſels is impair'd together, then will be the greateſt Heat. Hence will appear in *Theory* infinite *Phænomena* both Practical and Speculative. Of this Subject and Matter, both Ancient and Modern Authors have writ much, as the learned *Newton*, &c. And here if Heat could be extinguiſh'd in the moſt ardent Fevers, and other inflammatory Diſtempers, that would be the greateſt Performance in *Phyſick*.

CH A P. XXXVII.

Of Attracting Medicines.

THIS ſeems very difficult to explain, and no Wonder, ſeeing our Philoſophers gave Names always according to the Effect; it ſhould not be call'd therefore an Attrahent Medicine, which ſhould draw from one Place to another; but ſhould be term'd ſo only, by which our Antiquaries underſtood it; and they attributed ſometimes the Effects of the Cause metaphorically. So this Medicine is call'd that which is ſome Body reſiding within our Body, does determine, or tranſpoſe into the Place order'd, or commanded; and howſoever that
may

may be done, truly in *sola manu*; or hence it may be done, when the Body alone may be transferr'd in *locum jussum*.

'Tis here requir'd therefore 1st, As that Body which thus ought to be transferr'd, is either such a one, as from the Place where it sticks should be remov'd in *locum infusum*, or it ought at least to be prepar'd to be carry'd thither, as in E. G. if clotted Blood sticks in any Part of the Body, and we would bring it to the outside Skin of that Body, then on the other side it should be so capacious as it may be carry'd thither, or it ought to be so prepar'd as it may be able to reach the Side or Part; and this shall be the 1st Kind of this Attractive Remedy. And whatsoever is thus prepar'd, is such a Remedy.

2^{dly}, THE Condition is, that it may by Definition be said, which must needs be of some Cause, which so going into the *aptam materiam* shall force it into the Place requir'd, or it may draw from thence by a specifick Action; as E. G. If a Bar of Iron abides in the Place A, and for that reason I would have it in the Place B.; then whatsoever, I supposing to myself that Bar of Iron is large and dispos'd, it may be forc'd thither. This will be a Medicine of the second Sort.

3^{dly}, THE Manner and Condition is thus, That the Passage may be open'd thro' which the Matter ought to pass; hence it sufficeth not in what Manner the Thing moving may be mov'd, but that the Cause forcing may be present; but the Way (or Passage) indeed ought to be open; seeing when all Places are full in our Bodies, then 'tis not so easily handled. Hence those Medicines which make the Ways so fit and apt when to contract, as that the *Materia* may be drawn to the determin'd Place; this will be a 3^d Kind of Remedy. And this is done
in

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in the Destructive, and Laxative intermediate Ways, (or Passages). And thus we understand what those Attracting Medicines are.

In the 1st Kind, the Matter is to be mov'd; for the more mobile and fluid the Matter is, the better will the Preparation be of Motion from Place to Place. Hence this Production of Mobility, is made by the Stimulation of a Solid, or with the Imminution of a Fluid, or in rendring the Fluids better. And this is done by Resolvers, and Diluters does remove (or throw off) those Things which are in a kind empacted; for if any bad, or worse Matter sticks in the Middle, as in the Small-Pox, if any Power may be propos'd which might force it to the Skin, I say, it is an Attracting Medicine; because it transposeth the Matter from Place to Place.

2^{dly}, THE Kind of Matter is to be forc'd out; but the Strength of the Causes ought to be super-added, and all those which do propulse from that Place, from which they ought to be forc'd, to the Place order'd: Such a Cause is the Strength of the Heart. Hence every Action ceaseth in a dead Carcass. For if it be suppos'd that a Bullet of Lead sticks under the Ribs, it shall stick (or fasten) itself in a sound Part; here this Bullet is made as it may be extracted out of the Body; which happeneth that the Strength of the Life continually forceth, and throweth up, or fasteneth that Liquid, and thus at every Moment the Bullet is mov'd, however so little, till it may be expuls'd forth.

UNDER the 3^d. Class shall be contained the Motion of Friction; for E. G. if the Cause sticks in the place A. I would fain drive it into the place B. Then I must cause the Matter as it may be removed by the Vessels. If in these little Valves (or foldings) do hinder, I ought to destroy them, and

and the best Way to perform it, is with Frictions, and the Effect of it will cause an Attraction. Hence in the 1st. Place thus all Things operate, which by increasing the Strength of the Heart, Arteries and Vessels, cause the Matter to Expel. 2^{dly}, The Strength altho' of the Vessels may not be increas'd, so long the *resistentia* may not be increas'd, Attraction shall arise; and this the Ancients thought of Attractives, and these are Medicines that attract (or draw) the Matter from one place to another, and such are Attractors. 1st. Evacuations, *V. G. V. S. Et Arteriotomica*, or the Abjections of the *Alvum*. 2^{dly}, Scarifications. 3^{dly}. *Fonticuli*. 4^{thly}, *Fistulae*, or *Setacea*, or *Setons*. 5^{thly}, Eroding Causticks, all which expulse the Fluid, or by diminishing the Resistance, or in taking away the pressure, as the Suctions of the Cupping-glass, being kept warm; for if in any place I take off the pressure of an Acid, then there I make a small Resistance, *E. G.* When thus by the means of Cupping-glasses in taking away the Pressure of an Acid, the Vessels and Liquids are Restrained; and by such means by increasing the Liquids in that Part, they are forced out to the exterior Parts: And therefore *Hip.* said nothing could do more good in a Pluritick Body, or in *Ischioplenitick*, than to attract the Matter by wide Cupping-glasses, as they might be applyed to draw for the space of an Hour. 3^{dly}, Those which diminish the resistance of a Vessel, and are those also which loosen and mollifie the Vessels: The Vessel loos'd it doth not resist, so if they are loosen'd in one place, you may take away the Resistance. And these are the Medicines which also prepare the *viam Mediam*, or middle Passage. 4^{thly}, These are Specifick, as *E. G.* in a Plague (or Pestilence) *Theriac* being apply'd in the Groin, it is said to attract the Venom; Amber rub'd in those Places, as if the Arteries

teries were bare to attract the Venom, 'twill scarce be credited. All those poysonous Animals applyed alive or dead, in like manner shall attract the Venom from the Body to which they were apply'd, *E. G.* If a Scorpion shall sting any living Creature, he being bruised and applyed to the Part, shall draw out his own Poison by a Magnetick Vertue. A Toad, if he shall infect any place, and should be apply'd to that place, shall attract his own Poyson. A Mad Dog having bit any living Animal, take any of his Parts alive or dead, and apply it to the wounded Part, shall extract the Venom forth. When the *Indians* apprehend that a Serpent hath bit them, they catch the Serpent and open him, and apply him (or some part of him) to the Wound, and he certainly draws out the Venom. That *Lapis Germanicus* gi-- given, is said by its own Power to stick to the injur'd Part so long as the Venom is in the Part, when apply'd to any one Living Creature, afterwards falls off; and therefore those few which attract Specifically. Hence in driving out by hot Iron, all Cures of Diseases are Wrought; therefore to this kind of Attractors hot Iron may be referr'd, which do operate in driving out. The last Class is, of them which prepare the Place, that it may be passed thro' by the stimulation of a Solid, and by the diminution of a Liquid: For our Body is so made, *ut Lintea Multiplicata*, of which the Fibres are mutually laid one upon another; so in our Body the *Canales* are joyned one upon another, therefore from one Place to another there is always a *Canalis*, (Pipe or Channel) therefore 'tis not to be admired at, if oftentimes so wonderfull a Translation should be made from one place to another, and it consisteth in either the dilating of the Vessels and Passages, or in propulsing of the Matter; and sometimes there is a new Way by destroying or destruction

tion of the Passage, and that is done by Suppuration, and by Laxation.

CHAP. XXXVIII.

Of Repercussives, or repelling Medicines.

REPERCUSSING, is that which repells the morbidick Matter from an External Part inward; therefore every Repercussive is from an outward to an inward. The Effect is contrary to Attractors; and so as also here the three former Causes are to be brought hither only by changing the Term, from *à quo* to *ad quem*. 'Tis therefore required, that the Matter be propuls'd *ad intra*, when as we cannot apply Attractors internally (or in the inward Parts) we have no other such Internals but what are Evacuators; So the Parts being evacuated, they throw off the Exterior Matter that sticks to them. From every Part of the Body there is a Passage into the Veins, and in the Veins always a less Resistance. (See Boyle against Bellinus.) And in such a manner Evacuators are Repercussive Purgers, sometimes *Hydrogogues*, &c. *Sylagogues* are vehement Evacuators, v. g. as we see in the *Scabies* of the *Cutis*, *ex Anthematibus variolis, gummatibus gallicis*.

Secondly, THE next are those which force to the inferior Parts; all these are *actu Frigidissima*, when as they powerfully bring the Matter requir'd to Motion; if cold ones are apply'd, the Vessels are bound up, as may be in the Small-Pox, an *Erysipelas* beginning; and this may chance by reason the Fibres are too much strain'd by Cold, and so the Matter may be forc'd to go inward, by

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reason of the Vessels being too much constring'd, which otherwise had been propuls'd without the Body. Thus all *Repercussives* are *Stypticks* and *Contractors*, for as much as Externals may be forc'd, as it has been said of Constipators; for the Work of all *Repercussives* consist in it, and those nam'd *Resistentia*, may be increas'd in the externals, and less'n'd in the internals.

CHAP. XXXIX.

Of Maturizing Medicines.

SUPPURATION is to reduce any living Part of the Body into a *Pus*. But where Life is wanting, it cannot by any Ways be concreted into a *Pus*. The *Pus* is a thick Matter mix'd of a gross watry Substance, scarce of any Sapor or Odour; if the Body is sound, 'tis of a white Colour. No Suppuration therefore can be made, unless one Vessel or more be first broken, as by Experience is shewn: Because no one seeth a *Pus* more suppurating in a sound Vessel, for he converts the live Part into a *Pus*, consequently he vanquisheth it.

2dly, No *Pus* happeneth, unless from a broken Vessel; the Matter may be extill'd, or the Liquid pour'd out.

3dly, No *Pus* is made because some Vessel is broken, soon or shortly, but for as much as for some time it stagnates; then furthermore, 'tis tainted and corrupted, and so every Thing is made by Concoction; but that Liquid exstillling from a Vessel, may be turn'd into a *Pus*, it is either *Ichor*, *Sanguis*, or *Lympha*, when afterwards it loseth its own Nature, and by a gentle Heat of the Place, 'tis converted

converted into a *Pus*, which is demonstrated per *Ulcus purulentum*; for if by a Microscope such an *Ulcus* was always made clean, *effundet sanguis Ichorem*, and if it was cleans'd all Day long, no *Pus* will generate; for that Liquor is converted into a *Pus*, by the exhaling of the subtle Parts, and of the more crassating and glutinous remaining.

4^{thly}, This *Pus* is already generated by Colours alone; by Stagnation alone; by Fomentation only it is converted into a yellow, pale, soft Liquid, at the last into a black stinking Acrid upon the Nerves, viz. an unequal Gnawing. Therefore these are *Suppurantia*, 1st, Which do weary the Vessels. 2^{dly}, Which do effuse or pour out the Liquid contain'd. 3^{dly}, Which do stagnate the effus'd Liquid. 4^{thly}, and lastly, Which do cause the thin to evaporate. And 5^{thly}, Which do agitate the *Remanentia* to become a *Pus*.

Corol. I. THEREFORE it cannot operate, 1st, As an Action of a Suppurating Medicine, if the Liquid thus stick in the Vessels, as it cannot be resolv'd, nor is able to be got out of the Veins.

2^{dly}, IN a Schirrous, Cancer, *Exostof*, (or a Protuberance) by the Venereal Disease, and with *Bilis atra*, a Suppuration may not be apply'd, because the mortify'd Part cannot be converted into a *Pus*.

3^{dly}, IN Places when a *Pus* being made, cannot be expung'd out. Therefore these are all *Suppurantia*: 1st, Which do lightly stimulate. 2^d, Which do lightly attract. 3^{dly}, Which do impede great Exhalations. E. G. An Onion is a great Diffusor; if mix'd with Flower or Meal, it lightly stimulates. All these have the same Vertue, as *Gum*, *Galbanum*, for as much as Rosin sometimes stimulates, which Gums do impede too great an Exhalation.

FROM the 1st, Class of Suppurators, are the following gummous Aromatics, are the greatest that move, which are also acrid Salts, and very volatile, therefore it savours ill, such are *Ammoniack*, *Galbanum*, *Bdellium*, *Ellemi*, *Oppoponax*, *Sagapen*, *Tachama-back*. 2^{dly}, Hither belong roasted Onions, if apply'd carefully. 3^{dly}, Honey, which is very penetrating, if mix'd with other Things the very best. 4^{tly}, Bayes, Camomel, Saffron, Melelot, Elder; and these act by Stimulation. And in another Class are *Aperitives*, also said to be Heaters.

A 2^d Class, Suppurating Medicines divide the Parts, and mix within themselves, and those are they which are closing and stagnating, and this from the Strength (or Force) of a Life in being determin'd to that Place where Excretion ought to be made. And so under these are comprehended Attractors, which do draw to the Place the Parts, where Suppuration should be made. Hither belong all watry hot Things, apply'd in the Form of a Cataplasme with Herbs, they are Aperitive, and bind up just like *Patin*; they make the Vessels to resist less, and open a greater Flux of the Liquids; hence comes a light Tumour, and Suppuration. Hither belong watry Medicines, which contain a light viscous Matter in themselves, that they may stick long in the Part. And these are Moisteners, in which always they shall have the Power of Suppurating in all Forms, and Figures, E. G. As Chickweed of a white tasteless Relish, Pimpernel, *lens Palustris major*, or the aquatick Pellitory, which Herbs are humecting and relaxing. Hence these are proficuous in various Cases.

A 3^d Class is, whilst the Parts are mov'd in that Place, partly by the Strength of Life, and partly by
Stimulation

Stimulation apply'd, the Physician may cure, unless he should dissipate what is collected; so all are attenuating, it might be call'd more; and by all those it cometh to pass, which may occlude the Pores, but it cannot exhale them; but compell them to remain, or stick there; and it is done in the same Manner as by Pounding in a Mortar; where the Bodies are in the 1st Place kept close together, and then bruise'd with a Pestle; for by Suppurating Medicines, the Parts are brought together, and by the Power of Life are mov'd, so as that the gross and foggy Parts may not only stick, or remain, but moreover, might in a manner be somewhat volatile. This ought to be done always by those Emplaisticks, which are scarcely mingled with any Water, and they stop up the Pores that they may not exhale, or breath out. All such are gummous Aromaticks of the 1st Title, (or Rank) according to its gummy Parts; for they consist of two Parts, the one volatile, the other of a gross, heavy, oily Part. Emplaisticks E. G. are taken, if a Place (or Part) be inflam'd, let *Galbanum* be apply'd; as 1st, A Humour which might breath out or exhale, is restrain'd by an Emplaistick Power and the volatile Part. 2^{dly}, It stimulates and moves the Humour. On the other hand moreover, some Gums are simply suppurating, as *Arabick*, Gum *Tragacanth*, which hath only a Viscosity. Forasmuch then as they only bind, hence Honey, which is the very best of all, if it might be exsiccated upon a slight Costiveness, and apply'd in the manner of an Emplaistick; for it may have in itself a volatile Stimulation, and at the same time constipate the Pores. As also all Meals of Seeds, and all such as are of Beans, Peas, Vetches, Lentiles, Hemp, and of all noted Grains. Hitherto belong Figs, especially if the acrid Part be ex-

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puls'd out with a gentle Fire, and a little bruis'd. Hither also belong the Wax of Animals, the Yolks of Eggs, fresh Butter, all Fat of Animals, all the Oyls fresh drawn; and lastly, Emollient Herbs.

Corol. 2. HENCE it is seen how Men mistake in *Physick*, when as there are three Causes of Suppuration, and they take and apprehend all of them only for one Kind; by reason that Resolvers are opposite to Suppuration, because it is the prime. That which is stagnating with the Liquids, does convert it into a Pus, or one Mass; so the chiefest Discussive is that, *viz.* the Roots of Briony. They say moreover, they are Suppurating, which is not only so; for as it contains all the Qualities of a Suppurating Medicine; as then at another time it might have been only Aperitive. This Root Briony hath many Vertues in *Physick*.

Corol. 3. HEREUPON follows, That innumerable Forms may be prescrib'd, and given, according as 'tis more or less immoveable, or more or less profound, or deep, or more or less in the Glandulous Parts may abide an Inflammation; E. G. If a Doctor should be call'd upon against an Inflammation, where there is sometimes the greatest Motion of the Liquids, *à tergo*, what must be done in such a Case? He must not apply Aperitives; for they by too much moving of the Parts, will bring a Gangrene; but he must lay on a Loosner. As E. G. In the Plague where is a Bubo, Aperitives are not to be given; but a relaxing Plaister only, of the Meal of Hempseed, with a little fresh Butter. If another should be call'd for a slight Inflammation, or upon the Decay of Nature; if it ought to be brought to Suppuration, because E. G. it cannot be discuss'd; here such is to be taken whose prime
Basis

Basis is a very strong Attenuating Medicine. E. G. A Plaister of *Melelot*, or Gum *Galbanum*, or an Onion roasted in the Embers, a little Oyl and Spirit of Wine being added, viz. that the Liquid might be restrain'd, and Glandules stimulated.

If therefore the Action be very violent, we must act in a plain manner that it may be relax'd; as in a pluretick Inflammation, *Hippocrates* hath long since order'd this. And this is good for a Physician to know, if another should dispute and contend, that such a Suppurating Medicine ought not to be given. E. G. In a very hot Inflammation, not a more noble Medicine by Experience may be given, than this:

R. Of Sorrel that's fresh, new Butter, \mathfrak{z} ij, Of Rye-Meal, q. s. with a gentle Fire, make a Plaister.

Here Sorrels are taken, and they act (or operate) as in hot Distempers, as they are opposite to an Alcali. Rye-Meals are good, because they sooner grow sour in Heat, than other Meals do. Butter is taken, as light, oily, Emplastick, and not at all binding: And therefore in the Plague, Small-Pox, malignant Fevers, burning Inflammations, Buboës, &c. let them be brought to Suppuration. This is an *Arcanum*, approv'd of by me. For if any other Thing should be given, 'twill bring a Gangrene or Schirrus, in cold Distempers, where the Humour is cold, and consequently, the Strength of the Life decay'd; and so when Life is deficient. E. G.

R. Of Camomel Flowers of Elder, *Melelot* \mathfrak{aa} \mathfrak{z} ij; of Saffron, \mathfrak{z} ss; Gummum *Galbanum* S. A. that is, with hot Bread mix'd with Galbanum, of the Yolk of an Egg soluted \mathfrak{z} j; Oyl of Camomel infus'd \mathfrak{z} j;
Meal

Meal oribi; q. s. Let a Cataplasme be made with a gentle Fire.

If this be apply'd with a gentle Heat, it wonderfully resolves; and if apply'd in the Beginning of a Cancer, it is proficuous; or upon a slight Inflammation; and in both appears to be the best. In the Case likewise of hard Tumours, and schirrous Humours, that begin with Cold, or when the Glandules are harden'd; E. G. If a Tumour be very hard, as in a *Venereal Bubo*;

Rx. Of Honey boil'd to a Consistence ʒij, of new Figs bruis'd ʒij; of Onions roasted in the hot Embers ʒiv; of the Oyl of white Lilies, q. s. make a Cataplasme.

This incredibly promotes Suppuration without inflaming; and if it is compos'd with the former Ingredients, Reason tells you, that they will operate divers Ways. But if it suppurates internally, an Inflammation is seen: What then is to be done in the Case? as said before; E. G. In a violent Pleurisy, if you would have it suppurate with Speed; first ought to be examin'd, Whether the Strength of Life is great, or the Inflammation strong? Then E. G. farinaceous Things must be order'd; but the contrary is to be given, if Life is faint, and the Inflammation light.

Corol. 4. FROM hence follows what might be Suppurators, viz. is such a Medicine under this Title, viz. Where the Crisis is not to be expected; and that is what is to be brought to Suppuration, so it dissolves, as that all Things separated may come, and joyn together into one Place, being separate in no distinct Cells. In fine, I make these Emissaries, that the whole Suppuration may be purg'd or cleans'd

cleans'd out in Course (or Change), and that are the Solids being half broken (or vanquish'd), and the Liquids that are extravasated and overflowing. Now Maturation may be known, if a Place swell between the two Fingers, and is soft; it lightly fluctuates if a Place is somewhat suppurated; and if the Air come to the Place, it may turn to a Schirrus; consequently it may not be ripe, because of a continu'd Suppuration: It ought to be fomented as long as it undergoes the Matter contain'd. Hence it ought to be continu'd for some time with Things that suppurate; and the Tumour not to be broken till full ripe; E. G. A *Venercal Bubo*, in ten Days time, a *Pus* shall appear, and is felt; and if that *Bubo* should be cut, 'twill not be heal'd in a Year's time; therefore it should be well ripen'd first, and dress'd till the Matter fluctuates, and when Things are mollify'd, they are soon heal'd.

CHAP. XL.

Of Topicks.

TOPOS, signifies a Place: It is term'd, a Topical Place. Therefore this Chapter will treat of Topical Medicines, or those which cure a particular Place, (or Part) of our Body, by an Action appropriate to that Place, or Part.

2dly, HENCE it is deduc'd, That every Medicine ought to have such an Action, which specifically may cure the Liquid and Solid, and the Parts to which it is call'd Topical.

3dly, It is deriv'd; therefore it comes to pass, either with the very same *Moles* it goes to this Part,
or

or being to go thither, is thus prepar'd, as being convey'd thro' the Part they operate topically; and therefore is two-fold; either for as much as it goeth to that Place, or it doth prepare for the going thither; E. G. It may be call'd a *Cephalick*, or a Medicine which being to pass thro' the Stomach, doth so prepare, that it may go well to the Head, or which may so order it as to pass thro' the Blood, as being good, and so ascending to the Head.

4^{thly}, HENCE 'tis deduc'd (or concluded), That Whatsoever goeth thither, passes either with a qualify'd Motion of the Blood as it goeth, or is deterby some other Power.

5^{thly}, 'Tis disputed by the Law of Motion, nothing can be Topical, unless *conditionis Mechanicæ Moles*, of Figure, of Weight, &c. they may be so order'd, as it may be determin'd to this, as they may rather operate towards this or that Part; as E. G. if a Bullet of *Mercury*, and a Bullet of Wax, might be sent thro' the Artery *Aorta* (or great Artery), it will be seen that the Bullet of *Mercury* has respect to the Head, the Bullet of Wax to the Feet; because the Mercurial Bullet is as a solid Body, and contains his Body a very long time, as also his Motion, and the Motion of all Projectile Bodies, is according to a streight pointed Line; and by how much more ponderous those Bodies are, the more difficult they are to be hinder'd in their Motion. And seeing a small Bullet of *Mercury* is such a ponderous Body, according to the *Lineam rectam punctam*, for that Cause it will retain his Motion the longer; the Bullet of *Mercury* and the *Arteriæ Corosides* in a streight Line to the Head; but the Bullet of Wax is reverse; therefore in truth they are said to be such *Specificks*, which are season'd, or (endued) with such Conditions,

tions, *viz.* with a *Moles* Weight and Figure, &c. they rather tend to this than that Part; and had not been discover'd by the Learned *Boyle*, who hath made the most accurate Examinations of specifick Weights.

Now it may be said in the 6th Place, A Determination to a Place is made with Attracting Medicines, *viz.* spoke of before, when as they flow thither some other Strength (or Power) superadded, or set over it, or by Motion.

7^{thly}, For as much as those very *Specificks* are apply'd to the Place, or being to go thither they operate, then they do operate either upon the Solids or Fluids, or by Stimulating the Solids, or by Contracting or Relaxing, &c. Therefore a Topical Power consisteth not in a singular Virtue, but by a Determination made to that Place.

8^{thly}, THEREFORE in every Medicine the Causes are to be describ'd, when they might go to those Places; then to explain the History of Topicks very accurately, he ought in the first Place to explain the Causes, when such a simple Medicine ought to pass, when 'tis driven from the Heart, seeing I say rather in a streight Line, this Way, than that Way. 2^{dly}, Then he ought to explain the Strength of the Medicines, because thus far they were demonstrated from the Effect only, by reason therefore; E. G. Sage was call'd a *Cephalick*, because 'tis oft-times apply'd to our Bodies, it was seen to strengthen the Head, when notwithstanding, apply'd in a Pleurisy, it may be, there will be Venom, as in the Small-Pox, because it increaseth the Motion of the Blood; and therefore it only doth good in cold Causes, 'tis otherwise in hot Causes; and therefore *Topicks* are expedient only from the Effect; and seeing that besides they might distinguish in the Operation of Medicines, that there are two principal

principal Remedies, viz. Heat and Cold. Hence all *Topicks* are divided into hot and Cold; for all increase or diminish Heat: And by such Means if a Disease is taken off, it is said to have cur'd such a Distemper. Either by Heat, or by Cold, it is done, E. G. A Patient of a cold Indisposition, if such a Distemper shall be loosen'd with Rosemary or Sage, &c. this shall be call'd, from the Effect, a *Cephalick* Medicine. If sometimes a Man shall be sick of an Inflammation, he shall find his Brain to be affected by the Dolour of the inflam'd Part. Hereupon if *Sal Nitrum* be given with an Infusion of Violets and Rosemary, and the Inflammation shall cease when this is apply'd; from the Effect immediately this is said to be a *frigid Cephalick* Medicine. The same is in the *Ophthalmicks*, *Cardiacks*, *Thoracicks*, *Stomachicks*, *Hepaticis*, *Spleneticis*, *Meseraicis*, *Nephriticis*, *Hystericis*, &c. And these Generals are to be consider'd, and observ'd. Let us begin with those Titles of *Specificks*: These *Specificks* are the same Medicines, as are already spoken of in Generals, and these are denominated only from the Effect.

C H A P. XLI.

Of Cephalicks.

CEPHALICKS in *Greek* are call'd, such things as belong, or which might heat the Head and Brain, and this cometh to pass when the Function might be preserv'd and heal'd. These Functions of the Brain are to separate, and to distribute the Spirits. Therefore a *Cephalick* Medicine will be that which either conserves, or restores the Separation, or the Distribution of the Spirits, and this is done by the Adoption of the Vessels, and by the Preparation of

of the Liquids, and therefore the Strength of a *Cephalick* Medicine consists in that, as it may ingraft itself into the Vessels and Matter which is carry'd to the Brain; so it shall prepare, (or make ready) as the Spirits may be separated; and upon this follows the greatest Mobility (or Swiftness). Hence we see all those are call'd hot *Cephalicks* which abound with a thin Oyl, Salt and Spirit; and therefore hither are brought all Attenuating Medicines, especially when with the Power (or Strength) of Attenuating they convey the Matter, being grateful to the Smell and Taste; for we desire nothing more, than a grateful Smell and Taste; but what they might be Physically, we know not; but this we know, Those which have such a Scent (or Smell) operate upon the Nerves. Therefore the Class of these are Attenuators, which have a pleasant grateful Smell. Now must be inquired, What these are call'd, and these are Southernwood, Green-Tansey, which sends out such grateful Smell, as Bitony, Germander, Calaminth, Organy, Marjoram, Balm, Thyme, Sage and Lavender, &c. all which have a fine Odour. And on another Account, they are called *Cephalick*, because, *a Posteriori constat*, that they have such a Strength, or Power, as was spoke of before, and from the same Cause. Moreover, such are call'd *Cephalicks* from Animals, as *Castoreum*, all alcalious volatile Spirits of Animals, oily volatile Salts, volatile spiritous Things, Oily and Aromatick, for the Odour which they have. Among Fossils these are few to which this Name is appropriated, and indeed Spirit of Vitriol are called so by *Van Helmont* and *Paracelsus*, but why I pray? Why entirely upon another Account, as for Instance, because many Physicians call Distempers incident to the Head convulsive, as being acute, E. G. Therefore that which
taketh

taketh off the Effect, *viz.* The Convulsion, shall be such a *Cephalick* Medicine. When therefore the Spirit of Vitriol is dispers'd, if it lights on, (or meets with an Acid, it is that which causeth a Convulsion; because there is as if *Tartar* vitrioliz'd with it, and thence the Obstruction is remov'd, and in such a manner Doctors call it *Cephalick*; and truly such a Name may be call'd *Cinnabar*, as well the native, as the made *Cinnabar*, *seu q non scitur, cum non contingat Effectus promissus*. There is call'd also a *Cephalick* Medicine, a Powder, by the Physicians of *Zell*, call'd the *Poudre D'or*, which consists of the Sugar of Cinnamon, *Cinnabar*, and Vitriol of Gold, was made and given, and discover'd by by myself. Hence this Powder rather operates upon the Humours flowing to the Brain, than upon the Brain alone. Now cold Things are those which have a bland Volatile, and perhaps not of so grateful and good an Odour, as *Roses*, *Violets*, *Elder*, *Lilies*, and *Lilies of the Vallies*, &c. And all these are those which are to be call'd *Cephalick*.

Corol. I SAY, a Physician now, he knows the Indication, as where, and when he must operate upon the Brain, *viz.* wherein on the Solid, and where on the Fluid, and of what Nature the Distemper is of; and he knoweth as well the Determinations of the Distempers to the Place appointed, he may make a *Cephalick* of any Medicine; if the Vessels may not be too much bound. Relaxers are *Cephalicks*; if loosned, they are corroborating, &c. E. G. Suppose a Man ignorant of the Art, as *Empericks* and *Chymists*, which mind only the Furnaces, and know nothing of *Anatomy*. This Fellow seeing a Man in a great Fever, to rave and be light-headed, he says, This
Man

Man needs a *Cephalick*. Now a skilful Artist says, The whole Distemper depends from a slow Humour in some Joynt; as it sticks there, it hinders and obstructs the small Vessels. He says, it must be purg'd out, and the offending Matter must be carry'd off: Therefore he lets him Blood, puts him in a Bath, applies Clysters, and all these are not *Cephalicks*, Therefore of *Cephalicks*, they may not have the Cause always from the Effect, as they declar'd, by Reason of their great Ignorance, because they did not know what were *Cephalicks*; which, as 'tis demonstrated, are not given as *Specificks*: But whosoever knows the Indication of a Disease, and the Determination of a Medicine towards the Place, he shall be able to make of every Medicine agreeable to the Disease such a *Cephalick*.

C H A P. XLII.

Of Ophthalmicks, Odontalgicks, Otagicks and Stomachicks.

²**Οφθαλμοι** signifies the Eye, and therefore an *Ophthalmick* cures the Eyes: The Function of the Eye is to see; any thing that hinders the Sight, is call'd a Disease of the Eye; so if the Eye-lids are shut by a Palsy, by a hydropical Humour (or Swelling) &c. the Sight is impeded; but if the Disease of the Palsy hath nothing particular, as E. G. A Palsy in the Hand, so that here nothing of a new Thing happens, they may be said of all the Affections of the Eyes, E. G. in the *Tunica Cornea* of the Eyes being hurt, if the lesser Vessels are invisible, they may be made visible, either from a
Yellow

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Yellow Colour in the *Tunica*, p. N. or with the Jaundice, or if it be render'd dark, or rough and sharp, or if a thin Skin by the Scar of an Ulcer, or Scab, as in the Small-Pox, it looks ill, or if an external Body of a little Skin groweth (or riseth up) it becomes a *Sarcosis*, or a fleshy Excrecence, or an *Exarthosis*, or like a little Nail, or a Pearl, in these again, nothing is suppos'd here singular, as if it might happen to the Hand: Therefore here also nothing is singular. But *Ophthalmicks* here shall be all which is an Impediment in the whole Body, viz. upon a Mass of Humours in the whole Body they do correct. Farther the Eye does not see how far the Liquid which lies between the Membranes, either is alter'd by its Spissitude (or Thickness) or by the Concrecence, and it cometh under the Title of a greater, or lesser *Catarack*, or a Suffusion, &c. and these do shew no other but a Humour. If the Humour be too thick, 'tis to be diluted; if too concrete to be dissolv'd, &c. And so again, if any Thing do chance here, as if it might have befallen any other Part of the Body; again the Sight is impeded with the Viciosity of a slow Chrystaline (Humour), either with the Opacity of it, or by some heterogeneous Heat, &c. And this no one can restore by *Specifick* Medicines, but Universals, with which it operates upon the *Lymphatick* Vessels, as by *Mercury*, and if it do so, he cannot say, it heals the Eye, but in the Interval it cures the whole Body. Farther, the Sight may be obstructed, for seeing the Nerves are injur'd, and that may be done seeing the *Ductus Signiferi*, are mingled with the *Ductus Nervosi*, and consequently, if they be too much inflated, and swell'd up, also the *Ductus Signiferi*, and the *Ductus Nervosi* are press'd down, and so they cause the Influx of the Spirits to hinder, and therefore

fore there shall be no other Medicines than what shall replenish the *Ductus Signiferi*, again then *V. S.* such a Medicine shall again be call'd by no other Name. Hence 'tis a *Specifick Ophthalmick*, and operates only upon the Eyes, when it operates on the whole Mass of Blood, as well as on the *Lymphatick Vessels*, it being very proper to the Sight, sometimes these *Lymphatick Ducts* constituting a running Pock by Reason of too much Effusion, also compressing the Nerves, lying underneath and dispersed between them, with such as render them unprofitable, as well to the Sense as to the Sight. In this Case every Medicine shall be *Ophthalmick* which take away the Water from you, and the Sight *per Simile* is restor'd, and that is such in manner as the former which operates upon the whole Body, as *Mercury*, and shall likewise not be a *Specifick*. The same happens in the Immobility (or not moving) of the Eyes, which on another Account doth not happen, as because the Muscles of the Eyes are become Paralitick, or all according to the Part: Whereas before this Palsy hath nothing more particular, then if it had happen'd to any other Part of the Body, and requires the same Cure operating upon every kind of the Muscles. In short, the Eye hath, from the Part behind, the (*Vasa Adferentia*) Vessels conveying a watry Humour, and the (*Vasa Devehentia*) Vessels conveying it back again, which may be seen by Experiments made, in which all the watry Humour hath been brought from, and so at length in a short Time the Humour was restor'd again. 'Tis a manifest Signal, that there are the *Vasa Deferentia*, and the *Vasa Adferentia*. Now if it should happen that the effus'd Humour grows thick, so as by the *Vasa Revehentia*, it cannot be convey'd back, it may become *Oculus Elephantiacus*, so as it cannot be in a manner

T

cur'd

cur'd, unless by Pricking, and in this Case it shall be *Medicamentum Ophthalmicum Puncturâ*.

THEREFORE in remitting rather *Specificks*, and as a more happy Practice rather should a general Indication be consider'd, then what are sticking (or residing) in the Solids and Fluids, he orders to heal (them) in the whole Mass, and therefore 'tis said that nothing puts a Physician to a *Non-plus* more than these local Diseases, and local Cures; and they throw off the general Indication, which depends from the Solids and Fluids vitiated in the whole Mass, and so from thence ariseth so great Errors. And therefore they are no other *Ophthalmicks*, than what do remove (or take off) the Causes of an Inflammation in the Blood, *Serum*, and Nerves. But an Inflammation is nothing else but the Transflux of the Liquids hinder'd, and a Running follows behind distending, and sometimes bursting the Vessels; and this may be done in the Vessels of the Blood, *Lymphaticks*, as well as in the Nerves; as has been explain'd already; and are always such as operate on the whole Body, and in a manner specifically on one Part.

ODONTALGICKS, are those Medicines which are said to appease the Pains of the Teeth. And these again have nothing particular, tho' indeed they may take away an Inflammation for some time, *per V. S. & aliquando per V. S.* and sometimes by loosening, &c. the Inflammation is appeas'd; and if they perform any thing singular, they fall upon *Opiats*. The same is to be said of *Otagicks*, from having the same Vertue and Operation, as I said just before; which only appease an Inflammation, &c. and they have nothing particular in them: E. G. If there might be a Cancer in the Mouth, or a Schirrus, &c. it requires the same Medicine as the Cancer, or Schirrus in another Part of the Body.

C H A P.

C H A P. XLIII.

Of Arteriack Medicines, or Medicines which correct Faults of the Wind-pipe, and help the Voice.

THE ancient Physicians sometimes gave it for an Artery, as *Hippocrates* for the Wind-pipe, and Lungs, and Hoarseness; therefore they call'd it an *Arteriack* Medicine, which asswag'd the Hoarseness of the *Branchy*, as in a violent Cough, with ejecting of Glart (or Corruption) or from Crudity alone of the *Piniculum* sticking in the *Branchy*; because this rough Membrane ought always to be moist; for the *Glandul* continually existing, which they distill (or drop) upon the *Branchy*; if it is parted, there is a Moistness upon any Cause of the Nerves, they stick, (or are at a stand), from whence comes a constant Distillation, and so a Cough arises. Therefore they should be such Medicines which take off this Roughness, and restore the oily Moistness; and these make demulcent, oily, and gentle Medicines; therefore oily Lenitives are without all Acrimony, if they are gently swallow'd down. Hence all those which are of a pleasant Taste may be taken into the Stomack; there are also Emollients, Decoctions, Farinaceous of any Sort or Kind. Hence follow all Emulsions, Electuaries, Syrups, Juices made thick, as of Liquorish, Poppy, &c. the prime of which is Oyl of Almonds, either reduc'd into an Emulsion, or else into an Oyl. And likewise Seed of Poppy, as also Wallnuts, Pistaches fresh and new, &c. they render a Glue to the Artery, either by constraining, or opposing it; but the chief of all is the *Opium*, for this being

276 Of Arteriack Medicines.

taken into the Body, it suspends all or every Action of the Nerves to a Degree; for it may be imagin'd that the Artery was become rough. Then the Quality (or Manner) of the Medicine is twofold: 1st, To remove the Titillation; or, according to the common Organ of Sense, to abate the propagating or continuing of the Titillation; thus the Titillation is taken away, if the Nerves should be cover'd; but this cannot be done, by reason of the continual Cough, which is a perpetual Impediment to one another, that is, by reason of the Beating of the Nerves against themselves; which Beating (or Striking) is the Cause of the Cough. Then I ought to take off the Roughness, by the *Opium*, by which I stupify (or benumb) the Sense; so as that by this Means the Titillation, according to the common Sense of the Organ, shall not be continu'd. Indeed the Cough shall be, but it may not be felt; and so by giving of Time, and with Delay, the moist Humour may be secreted out; and so the Medicines taken may approach the Place. In the same manner the *Opium* operates only by taking off the Cough for a time, *separationem impediens*. Hereupon some Men think, that one Grain of *Opium* will take away all the Effect: And if so, it doth it only by stupifying (or lulling them asleep), as said before, as the Cough may not be felt; and so Medicines may have the more Effect.

Corol. THEREFORE the best *Arteriack* Medicines, are those that appease (or allay) a Cough: Which may be effected three manner of Ways:

1st, SO far as it removes and takes off the Hoarseness with oily Medicines.

2^{dly}, BY asswaging it, for as much as any Steam
or

or Vapour being swallow'd down, they may abate, or assuage it.

AND 3dly, by interposing a moist Medicine on the Nerves that are so tickled. 1st, They cover them with a moist, oily Matter. Or 2dly, they intercept the Sense for a time.

CHAP. XLIV.

Of Thoriack Medicines.

THESE are said to be such as do heal and cure the Lungs; and the Function of the Lungs is twofold: 1st, An Oscitation or Gaping for expelling and attracting the Air. 2dly, For forcing and driving out the Blood into the Left *Auricula*: Therefore whatsoever does expedite the Motion of Respiration, and also Expiration of Motion; from hence they are call'd *Thoriacals*.

I say 2dly, These Medicines can have no Operation, unless 'tis first plainly manifest, That the Function of either of the Parts is wounded (or disordered). Hence the Distempers of these Functions being known, nothing shall be accounted singular, or particularly for the Lungs, but it shall be in a Kind either Diluting, or Dissolving, or Attenuating, because it shall be manifest, that there may be either an Inflammation or a Catharr (being a Flux of Humours) and so our *Specifick* may be referr'd to the Lungs alone. Indeed, 'tis said of Hyssop, Sage, Marjoram, Saffron and Sulphur, that they are all *Pulmonicks*. If they are well consider'd, they operate upon no other Account, than that they attenuate the Blood being viscid and sluggish, and not able to pass thro' the minutest Vessels; and in

its Motion they hasten into the Heart. Here-upon 'tis commended as a *Specifick* for the Lungs, and especially because it cleanses the Lungs from Corruption. But these Herbs being well consider'd, act (or operate) on no other Cause, which the other Herbs do, spoken of before, may be accounted for the Lungs; therefore 'tis concluded that there is no *Specifick* Medicines, which do immediately touch (or light on) the Lungs in breathing on them, as the Vapour (or Steam) of pure clean Water aromatiz'd with savoury Herbs, and a Suffumigation of *Olibanum*, *Frankincense*, *Mastick*, *Benzoin* receiv'd in the Mouth, when sometimes the *Lympha* is too thin and acrid upon the *Aspera Arteria*, and being too much relax'd by the *Lymphatick* Vessels; and in such a Case they are the very best Remedies.

2dly, IN the Exhaling made of any putrifying and alcalinous Matter, as in a Plague (or Pestilence) or Small-Pox, &c. when the Air is become too hot, and alcalinous, and infects the Lungs, in this Case the Steam of Vinegar, of Rhenish-Wine, of Sulphur, are *Pulmonicks*, being exhal'd; this Vapour doth in a manner kill and vanquish all putrifying Matter, as a most celebrated Physician hath experienc'd. Oyl of Vitriol dissolv'd in an artificial Tincture, as also the Breath (or Vapour) Vitriol in some Places causes a *Peripneumonia*, and the Afflictions of the Lungs are hardly cur'd. Also the Vapour of putrify'd Urine, as an only Medicine, being immediately receiv'd, cureth, and doth convert as it were into a volatile Vitriol. Hence if the Lungs are affected, it is from such Matter which procures Impurity, and obdures the Passages; the best is the Vapour of Water, in which also Urine and Salt of Tartar are mix'd, and some sweet Spices, as spoken of before. For
Attenuating

Attenuating Medicines do frustrate Expectoration; for the Vitiosity adheres to the external Parts in every ultimate Case, where too great Grossness and Viscidity is to be attenuated; likewise the Vapour of warm Water alone. *Paginem absolvit, & exinde colligitur sola vena Thoracica, esse remedia hæc jam dicta, aliaque non dari, quod praxis sua experientia ulterius demonstrabit.*

C H A P. XLV.

Of Cardiack Medicines.

THE History of these is much confus'd, for which Reason they ought to be well weigh'd (before administred) because every Cardiack Medicine is sometimes mortal in one Case, and salubrious in another. And this Medicine is a Cure in one Case, and Poyson in another. The Medicine is so call'd, because it increaseth the Strength of the Body; for in saying that it increaseth the Strength of the Heart, 'tis not such; because in the Inflammation of a Fever, the Resistance of the Vessels is known. If I therefore should straiten the Impulse of the Heart, in contracting its Fibres, or by augmenting the Strength, I should cause a greater Resistance, and so kill the Patient therefore it ought not to be said to augment the Strength of the Heart, but to invigorate the whole Body. And by the Strength, nothing else is understood, but the Potency, or Faculty, or corporeal Condition, whereupon the *musculorum Genus*, might be mov'd, and *liquidi Genus* may, as usually, flow thro' the Vessels, because

then the Body is most robust, when all the Liquids are perceiv'd to have a free Passage: And these are the Operations (or Effects) of the Nature of an Animal, *autem sunt quando necessarii spiritus ritè influunt*, therefore it shall be a Cardiack Medicine, as may augment or restore the Strength (or Faculty) of moving all the Muscles and Liquids thro' the Vessels. Now I say then it is proper the Vessels should be mov'd, for as much as the contractile Force of the Heart is such, as the Liquids being transmitted thro' the Vessels, they may be able to force out. 2dly, When those Liquids are passable thro' the Vessels. 3dly, When the Vessels are so prepar'd as they may be able to flow thro', then this is the Strength that propagates (or furnisheth) the Heart with so stout a Motion, and as the Liquids being transmitted to pass easy, might be able to force thro' the Vessels that are proper: And if the Strength is deficient, that it might be increas'd, if the Liquid is not passable, that it may be render'd such; E. G. If a Vessel thro' a Wound, (or other Accident) might be broken, that it should be made whole again.

In respect of the Muscles, a Cardiack Medicine can hardly be describ'd, because the Muscles, or *Vitales sunt simplices*, either they take the Nature and Cause from the Cerebellum, as Animals; wherefore they take the Cause from the Brain. Hence the *Vitales* may be corrupt (or spoil'd) and so the *Animales musculi quumque deficient, possuntque dein musculi Animales deficere, & musculi Vitales augeri*, as in an Apoplexy, where the *Vitales* are increas'd, viz. the Pulse and Respiration, the *Animales* truly are Paralytick; hence 'tis difficult, as is said, to assign such to be a Cardiack in respect of the Muscles; but it shall be either Apoplectick, or Paralytick, &c. then the Medicines shall be taken according to the Strength

Strength of the Heart, and Aptitude of the Vessels and Liquids; for whether the Cause of the Evil may lie in the Brain, or in the *Cerebellum*, therefore it shall be always so, because the Heart cannot be mov'd, (or stirr'd) therefore cannot propulse the Liquids. That therefore shall be a *Cardiack* Medicine which raiseth the Strength of the Heart, as was said before. But when the Heart *ist*, may be contracted by the Spirits from the *Cerebellum* communicated to the Heart. Therefore that shall be a prime Medicine, which restores the Matter fitted for the Spirits in the *Cerebellum*, from thence it demits it into the Heart, and impresses it on the Heart with the requisite Weight of Impression. The Heart indeed, as it may be contracted by Virtue of the Spirits from the *Cerebellum*, it is requisite that it be discharg'd of the Matter contain'd; but it cannot be discharg'd of that Matter, unless the Lungs be good, and except the Blood and Veins be of a strong Constitution. Hence it may be prov'd, that *Cardiack* Medicines are infinite.

FOR I say truly, the Heart being situated in a sound Body, every Cause indeed may contract the Heart, and it is thro' the Spirits flowing from the *Cerebellum* into the Heart, but the Heart cannot always be contracted, unless it might be evacuated, (or discharg'd) either as the Matter impeding (or obstructing) the Contraction, may be expell'd out. This Matter cannot always be expell'd, for the infinite Occasions spoke off before, and for the innumerable Vitiosities in the Lungs, the Vessels and Blood, &c. Therefore there cannot but be infinite *Cardiacks*, by Reason of the various Conditions which are requir'd: Therefore we may not admire that the Difficulty should be so great of discovering a *Cardiack* Medicine; because if we could
make

make the Heart to be always in his Motion, for the Life is always continual, therefore *Cardiack* Medicines are always compos'd, (and order'd) and all Kind of Medicines which have the Power (or Virtue) in amending (or correcting) shall be a *Cardiack* Medicine; afterwards it may be either Purg-ing or Sudorifick, &c. in Effect verily it will be a whole *Cardiack* Medicine. Hence so great a Difficulty comes concerning a *Cardiack*. But in Reality those are 1st, true *Cardiacks* which operate upon the Spirits. 2^{dly}, Which operate upon the Vessels. And 3^{dly}, Which operate upon the Secretory and Excretory Liquids. Those operate upon the Spirits, which generate Spirits, which also determinate and excite (or raise) them up. The Spirits are generated by those Medicines which afford Matter to these. If the Body is sound and healthy, the Matter of the Spirits is known to be the chief of all, from the Consideration concerning the White of an Egg, *multus enim fortis, est nisi illius sanguis con- crescat tanquam albumen ovi*. For *Malpigi* demonstrates, that the first and chief *Bulla* being very small, is increas'd throughout the whole Mass (or *Moles*) by the *Genus nervosum* alone: Much might be gather'd from *Malpigi*, *Bellinus*, *Borellius*, of these Things. Now that Preparation of the Spirits, the White of an Egg is to be drawn or divided into *infinitos sacculos parallelos*, always stretch'd out into smaller and smaller, and the prime (or chiefest) of these do not yet congeal the transflux Liquid thro' the minutest Vessels by Reason of the Heat (or Fire) and which now passeth thro' the minutest Vessels, at length being become so subtle (or thin) that by reason of the Heat it can no more congeal (or coagulate). Hence 'tis perceiv'd that the *proxima Materia* of the Spirits, is from some serous (or wheyish) Viscosity, so as by its Thinness, it can congeal

congeal no more. Now if the Spirits might be such; therefore they ought to make up (or to recover) the Spirits by every such Medicine, from whence the Chyle is easily vanquish'd. Whereupon the *Materia albuginea* may congeal by reason of Heat, and so at length they subtly pass thro' all the most subtle Vessels, as being so exhal'd that it can no more congeal by reason of the Heat. Therefore *Cardiacks* will be such as restore the whole Machine (or Frame) into a sound State. Hence all Food in Phthisical Persons, *v. g.* and those are *Cardiack* Medicines; and they effect that which Medicines, especially *Cardiacks* cannot do, because the Vessels are destroy'd so as they cannot be repair'd again. Therefore all Meats and thin Liquids are *Cardiacks*, which are endu'd with a grateful Savour. By a grateful Savour, is understood that which is savoury, or relisheth well to Infants. Here the chief is Milk, which is most proficuous, and cometh nearest to the Chyle.

1st, BROTH of the Parts of Animals, which comes very nigh to the *Materia Albuginea*, and adheres as nigh to the Spirits, when as the *Materia Albuginea* could not be brought to effect by a Renown'd Physician in *Chymistry*.

2^{dly}, WINES of a delicious Odour, taken moderately.

3^{dly}, ALES of a good Odour.

4^{thly}, ALL Fruits of a mature Juice; for they ought indeed to be grateful to the Taste and Smell; such are Grapes, Ripe Berries, Cherries, and chiefly Mulberries, Apples, Pears, Melons, as also Apricocks, &c. *Sal volatile* has no Affinity with these, but only to excite the Spirits. If a Man is weak (or infirm) he is somewhat repair'd with these erroneous Medicines.

2^{dly},

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2dly, MEDICINES which determinate the Spirits and are *Antispasmodick*. And also every Medicine which taketh away the Hyfterick-passion, and Suffocation of the *Uterus*, &c. Hence *Galbanum*, *Affafetida*, are *Cardiacks*, because sometimes they operate being determin'd as *Antispasmodicks*.

3dly, MEDICINES exciting or raising up the Spirits; such are all Stimulators *Cardialium nomine*, of a grateful Relish and Scent; as 1st, all Spices, especially those of the *Eastern Parts*, as Cinnamon, Nutmegs, Ginger, Galangal, the Rinds (or Barks) of odoriferous Fruits, Grains of Paradise, Oranges, Citrons, Pomegranates, &c. moreover, an infinite number of Herbs; as Southernwood, Baume, Thyme, Lavender, White-Lillies, Grains of Kermes, Saffron, the *Opium* itself, &c. Hitherto belong, 2dly, all Wines, and Spirit of Wine, all oily Spirits, all oily volatile Salts, all Spices and their Compositions, for as much as they only stimulate, and do not generate Spirits. Hitherto belong Sympathical oily Spices of Essences, Oyls and Sugars confectioned. And these are Medicines which are of the first Kind (or Sort) *viz.* which operate upon the Spirits, either in creating, or determining, or by stimulating, else by exciting them. The 2d Kind of Medicines are all those which set in order (or regulate) and prepare the Vessels, as that they may be able to give Passage to the Liquids; here are Looseners, and here are signify'd *Cardiacks*. As Baths, for as much as they relax the Vessels, are *Cardiacks*, timely administred. As by Experience, a Famous Physician had a Man in Cure, who was almost congeal'd (or frozen up) with Cold, whose Strength was deficient, by reason of the Vessels being bound up, which hinder'd the Motion. He was restor'd again with Emollients; by which Means the Vessels could have free Passage again.

Afterwards

Afterwards those which cause that a Vessel may operate by Propulsing; either that a Vessel may be able to propulse (or drive out) the Liquids; they cause that a Vessel may be enlarg'd, which dependeth on Solidity. And this is done by Δ *tria*, spoken of in the *Corroborators*, as the *Cortex* (or Bark) *Peruvianus*, Apples, Quinces, Iron, rough Wines, are good. These are *Cardiack* in too much Flaccidity (or Blackness) of the Vessels; for if they are given in over-much Solidity, *Letbalia sunt* they become mortal, as E. G. Iron, or Steel, in the pale Distemper of Virgins (or Maidens) call'd the *Pica*, cureth the same in Corroborating the Fibres. The same may be given when the Vessels are too much constring'd, that is, they happen in accute Distempers, and they beget a Schirrus; therefore rough Wines are the best where the Vessels are not loose, as also *Greek Wine* from the *Levant*; but not a rough Wine in Hecticks and Phthisicks.

A 3^d Kind is that which forceth the Liquids into Motion, and operates upon the *Vasa Excretoria, & Secretoria*, in which it is requir'd that they might pass easy. 2^{dly}, That the Vessels might be proportion'd to the Liquids. And in the 3^d Place that the Liquids may be sound. Therefore that these Medicines may hitherto be respected, which may procure an easy Passage for the Liquids; and if those should not be sound or healthy, that the Liquids might be effus'd (or flow) upon them as if they were sound; as E. G. If I could emit (or evacuate) all the morbus (or sickly) Blood from a Country Man, and replenish him again with a Liquid, by conveying it in like to a sound Man. Certainly upon a Supposition, that the Vessels may be sound, I could restore and heal him. Here follows on this Head, that warm Water, is
above

above all others, the only *Cardiack* Medicine; but 'tis only momentary. So I may dispute, especially if Spice be undigested, when the Sick has taken it, he will perceive himself well; but a little after again he shall grow feeble, and decay; and 'tis on that account, because for a Moment, or short time, it renders the Liquid to pass freely; but the Vessels are not proportion'd, as either they are too weak, that they might propulse, or drive out, the Liquid of another Sort. Hence 'tis concluded, That *Specifick Cardiacks* are not to be given, which respect the Heart alone, but which promote an easy Passage and Motion for the Liquids. Wherefore if any one should be of an alcalinous Nature, he will be to himself a *Cardiack Acid*, & *è contra*, also seeing there might be infinite Conditions in which the Liquids and Vessels are corrupted, and spoil'd, therefore a Medicine to them is wanting; but they shall be all *Cardiacks*, which are directed to the *Viscera*, when these *dependant*, & *recipiant materiam*, either from the Heart, or from the *Thorax*, or from the *Cerebellum*, or from the Brain, and also restore it to them again. Here in the same manner as spoken concerning *Cardiacks*, just so operate all *Stomachicks*, *Spleneticks*, *Intestinals*, *Hepaticks*, *Chystick*, *Cholerick Spleneticks*, *Mesenterick*, *Nephreticks*, *Histericks*, *Nervinous Medicines*: Every one undertakes to give them; and it seems to me that all these Medicines can operate no other Ways, than for as much as they restore either the Fluids, or strengthen the Solids; and wholly explicated, they are all *Specificks* dedicated to the *Viscera*. *Restat nunc ut agatur.*

C H A P. XLVI.

Of Charms, or Carminatives.

CARMINALIS Medicina signifies to assuage, or pacify with Verses, with a calm Superstition, *quia putatur & vates harmonia aptè continuata & concinnata, sicut musci, delinire posse nimios aliquos motus.* Hence Apollo was said to be the Inventor of Poetry and Physick: for that reason they allow'd that sometimes to Medicines, which could assuage the Gripes of the Belly, and intirely disperse them. And thus if I should unfold what *Carminans* may be, we must enquire from what Causes a *Flatus* and Dolor may arise; Dolor (Grief) or Sorrow is an Extension or a Distraction of the Fibres; a *Flatus* is an Ejection of *Liquidi Elastici*, which being compress'd and rarify'd, and seeing it was so, it conquers the Compressing Cause, and with Force and Violence, the Dolor expands itself with the *Flatules*. Therefore nothing is suppos'd but that it may abide, (or stick fast) in some hollow Part of the Intestinals, the *Materia Elastica Liquida* being rarify'd with Heat, and constrain'd (or kept back) by some Cause, and may remain there for a time; and so a Passage being made, it bursteth out, and if it remaineth in the middle (or in the midst of the Body) and wanders from Side to Side, it excites Gripings and Colicks: Therefore a *Flatus* is threefold, superior, as *Eruptions*, or Belchings; and inferior, as *Crepitus*, or Raspings of Wind, and abiding in the Middle 'tis also call'd *Borborygmus*, or a Wambling in the great Intestines. The *materia Elastica est varia*; E. G. Air, for as much as 'tis such as entereth into our Gullet, being swallow'd down into the Ventricle and Intestines, neither cometh out again; and

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and when thus it entereth in, and cometh out again, it causeth no Grief or Pain, but when it is constrain'd with Heat, and from an external Cause compressing the small Pipes, or contracting, or drawing them together, it is provok'd by compressing; for so in Women if they be too hard-lac'd, there arises always a Murmur, or Noise, like to Frogs; and that only is by reason of too hard Lacing themselves, with which the Air is forc'd on this Side and that; and 'tis wonderful how long these *Flatuses* may remain in Bodies. This may be known more plainly, if a Flagon, or Pot, be fill'd with Water, and stop'd up close on every Side; here certainly the Water wanders being forc'd on this Side and that, untill the Ligature or Stopping be loos'd, and Flagon, or Pot, is releas'd, and the Water may come forth; just so it chanceth in an intestinal Fistula (or Pipe) they being impuls'd, or inforc'd, and the Way or Passage shut up from contracting; and this is the Cause of the Cramp. The Cramp ariseth *ab oris utriusque Sphincteris contractionem*, even as in Hysterick Women, wherein the *Sphincter* is contracted, as the Eye-lids in the Eyes, the Air endeavouring to come forth, findeth the small Pipe shut up, therefore it straineth or stretcheth the little Pipe, *asperta materia comprimit*, the Lungs from the distended *Abdomen* are compress'd, therefore they think 'emselfes to be suffocated; therefore as soon as any Cause loosneth the Cramp, the *Flatus* bursts out, and they are set at Liberty: The same chanceth about the End of the *Oesophagus*, and the End of the Stomach; for these little Mouths being bound up, the elastick Matter being pent in, blows up the Ventricle, *qui remittit eruptis flatibus*. If this befalls an intestinal Fistula (or a small Pipe in the Intestines) it cometh to pass in the same manner it may arise from so light a Cause, as
may

may be from what follows: There might be, for Example, an Hysterick or Hypochondriack Cause sound (or cur'd) for a time, to whom a Messenger bringeth a sorrowful Message, presently from the Mutation (or Alteration) alone of the flowing of the *Liquidi Nervosi*, there shall be Tumours or *Flatules*, &c. Here it cannot be said to proceed from the *materia Elastica*, but it is the Cause only; by reason in such a Case the free Exhalation is restrain'd and kept back; and even the same, as in a Hoghead full of Wine, shut fast, as usual, and afterward is made to stand with a small Hole, and Care is taken of it; and just so truly this *Phænomena* depends from so simple a Matter, *his positis*.

OTHER Matter is not charming, as that which taketh away the Cramps of the Intestines and Ventricle: To this warm Water is given, Oyls, all hot Things, for as much as they are stimulating, they draw the Cramps from Place to Place, *per vim attractantem expositam*; as Oyl of Anniseeds, Fennel, Cumin, &c. Likewise volatile Spirits, and all volatile Oyls, all *Spasmodicks*, external Motions, Frictions, Baths, Fomentations, &c. So that the whole is only to loosen the distending Power. And that every Medicine may so operate, for which Cause *Opium* is the best of all the *Carminatives* (or Charmers) and the supream. The Causes of Cramps are various; as 1st, They arise from a Chronick Distemper, and unequal Motion; for it ought to be suppos'd, that there are certain Laws that the Blood should equally pass thro' the Veins and Arteries in the whole Body; and so moreover an equal Proportion in Nature is requir'd to the Nerves, as it may flow in the same manner. If now in any Disease a Determination should be lesser than his own Elasticity, so that it may rush

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into this Part, and now into that Part: Such Cramps cured, when the chronick Diseases are cured, from which they depend.

2dly, THEY arise from Poysons, and acid Things carry'd into the Body; for almost all Poysons bring Death to a Man, and they are most usually taken at the Mouth: They excite *Flatules*, Gripes, and violent Tumors, and they do so distend, or strain the Intestines and the *Abdomen*, that they might go from it, they burst the Intestines, as a *mercurio vitriolo caustico metallorum*, viz. If with its burning they force themselves to the *generi Nervoso* to one Part, that Part does contract itself; and this Part also being contracted, it excites thro' the whole Body Motions into all the Parts not to be conquer'd, and then 'tis conceiv'd, a small Pipe to be seven times longer in us, and every where convuls'd, constring'd and irritated, it rarifies, or makes his Liquid so thinn by the Operation, and causeth a Dolor, or Heaviness; and by how much less the Grief shall be, by so much the more the Liquid stops in his Motion; and when the Blood thickneth and curdles by a Stagnation; so also in the Nerves, when they are intercepted in their Motion, the Spirits especially will crowd themselves together very much, and the Cause does increase from the Nerves lying between, so as they do oftentimes burst the Bowels, before the Cause might be loosen'd, and it may be in the same manner, as in Mechanics, a small Pipe may be fill'd with a *Cylindrick Flatus*, or Blast, if from either Part, the Way, or Passage, may be open'd; yea, it shall be blown, or swell'd up, *nullo impetu*, if one End of any Thing be bound up with a Thread; (as a Bladder) yea, a Child by much Blowing into it, shall make it to swell up; but if the Blowing be prosecuted too far, as beyond Measure it may be extended, it happens that the
Straining

Straining will be so great, that in the Conclusion it shall burst asunder. These are Charmers in this Case, which are dedicated to Poyson, in the Title of *Antidotes*, which take away the Cramp by impeding the Pressure of the *Nervosi Liquoris*, and then *Opiums* and *Opiats*, are good; hereupon it is said, that *Opium* truly is an *Antidote* for Poyson; and it does nothing else but lessen the Motion as it were of the nervous Juice, *Quare etiam effluit liquoris nervosi*, and the new Determination is obstructed in the Place where they now stagnate. In this Place there is not so great a Pressure, and the Resistance remitteth, and therefore the Dolor and *Flatus* operates as a Lance doth upon a Vein of the Blood; which doth no more than take off the Inflammation; which causeth it to diminish that it may not flow thither with such Force and Violence. And thus it throws open the Courses of the Body, that the Poyson may pass freely, *Quod sic nihil agere potest*; if it pass immediately, and stay not in the Part.

C H A P. XLVII.

Of Antihelmin ticks.

HELMIS, and from thence *Helmintis*, in the Greek, signifies the *Lumbricos*. *Antihelmin-tica* therefore, are those which kill Worms in the Intestines; and also these Medicines destroy approaching Distempers. The Places in which they are contain'd, are in the *Oesophagus*, and *Ventriculo*, as Authors instruct, oftentimes in the Intestines, as Practice tells us, but are seldom contain'd in the *Colon* (or great Gut) and if thrust (or forc'd) thither, they cannot subsist long, by reason of the rol-

ling of the Guts and Coughing. And how these Worms are generated, 'tis not my Business to enquire; but shall only speak of those Medicines which are contrary to them: And these are reduc'd to Medicines that kill and expell them. There is a great Error in Physicians, when a sick Person is persuaded he cannot be freed of them, unless they should go through the *Alvus*; but that is not true, when as the Worms are so small and slender, that sometimes they go out in a glutinous and dewy Humour, and at other times in a glutinous and mucous Matter, because of the Motion of the Intestines; likewise sometimes they are broke in pieces, as small Fishes are putrify'd with Heat, and so again, they are excreted *sub mucifacie*. In former Times they knew not how to kill them as they might pass away in a *Mucus*. There are many Things to expell them, which may be reduc'd to four different Medicines, that may kill every Worm in the Body.

1st, ALL oily Things, if immediately apply'd to the Worms; E. G. If you take six Grains of Oyl of Olives, and anoint the Breast, the Worms are presently destroy'd. *Malpighius* goes beyond others, and says, That Worms stick at the Ends, or the very Outsides of the Body; which are the *Aspera Arteria*. So that if a Man could anoint the *Aspera Arteria*, they die. Therefore the best Remedy is to drink Oyl, or to take it in the Nature of a Clyster; which I did administer to a Nobleman, who was sick a long time of an *Ascariides*, at length I gave him Wormwood, and cur'd him, when all other Medicines fail'd; and then Purging with Oyl-Olive, two Ounces, he was immediately sound. And it might as well be given above as beneath.

2^{dly},

2dly, ARE Medicines compounded with Honey, as Experience tells us, 'tis a wonderful Balsam to kill Worms, tho' not so soon, and it may be given in the same manner as the Oyl-Olive, being purg'd before-hand.

3dly, WHICH wound and kill them *vulnerando, conterendo, purgando*; such are the Bones of small Fishes, the Tail of an Eel, burnt Hartshorn, the small Bones of Animals pounded small, the Filings of Steel. Let these be given in the same manner as the above-said, and it shall kill them.

4thly, WHICH are call'd poysonous Medicines; as *Mercury* prepar'd so as it may pass thro' the Intestines; and prepar'd in like Nature a Pill of *Mercurius Dulcis*, of *Black Cinnabar*, given with a light Stimulator. These being drank, and determinated for the *Alvus*, they kill them. Hitherto is allow'd also Vitriol of Steel, and Filing of Copper, &c. Vitriol of Mettals, given in the same manner, they operate with a light Stimulator. And these I also discover'd. Also bitter Things, as an Infusion of Rue and Wormwood: And these because they comfort the Stomach and Intestines, and prepar'd rightly, kill Worms. Hence all Purgers, and all Evacuators, expell them, as Agarick and Rubarb, &c. And there is no Distinction of all those that expell or kill Worms from a violent Constitution.



C H A P. XLVIII.

*Of Medicines against the Aching of the Heart. De
Medicamentis ad Dolorem Animi.*

THIS Theme is as beautiful as profitable ; for nothing is more desirable in all Diseases, than to appease and assuage the Sorrow and Heaviness of the Heart. And seeing there are so great Obscurities in *Physick*, therefore the whole History shall be premitted. *Ὁδύνη* signifies Grief or vehement Sorrow. *Ἀποδύνη* signifies *absentia Doloris*, therefore an Anodine Medicine, is that which causeth Grief to abate. *Παρηγορεῖν*, signifies to speak a fine or pleasant Speech in the open Market, or in Publick; and so to assuage, to pacify, to comfort, which they said was a Means to assuage and lenify the Crudity of Sorrow and Grief of Heart. Hence came *Paregorical* Medicines, which take away sharp Grievings and Sorrows. And that is one Kind of *Anodines*.

ὕπνους, signifies Sleep. *Hypnotick* therefore is a Medicine that procures Sleep. Therefore 'tis suppos'd that Sleep will take away all Grief. From hence it comes that this Medicine with Procuration of Sleep, abates Grief. After this also such another Medicine mitigating Sorrow, is call'd *Anodinum*. *Νάρκη*, signifies *Stupor*, Amazement. *Stupor*, signifies such an Affection of the Nerves, as they may well perceive (or feel,) whilst they cannot communicate to the Brain. Wherefore *Narcoticks Stuporem incidentia, seu Anodina Stupifacientia*. *Νέφους*, signifies the Reins, are hence *Nephritick*

Nephritick Medicines denotes the absence of Grief; and therefore they are communicable with *Anodine* Medicines: *Anodines* therefore and *Nepenthe*, are of the Kind, the Diversity, and according to the Contrariety of the Species, and Causes, they shall be *Paragoricks* and *Narcoticks*, which operate upon the Nerves, and *Hypnoticks*, which operate upon the Brain. Now follow the *Axioms* explaining what Dolor might be.

1st, *ANODINES* in general, are those which take away Sorrow and Grief of Heart.

2^{dly}, *ALL* Dolor consists in some Disposition procur'd in the Nerves, of a living Body; for as much as this Dolor signifies a corporal Cause, and not concerning the Sorrow of the Mind, as may be drawn from all Experiments; for what sticks, or remains in a Liquid, doth not grieve, unless apply'd to a solid Body; and all the ultimate Parts of the Solids, are the Nerves, as was said in the Beginning of this Matter. Therefore all Medicines do grieve, for as much as apply'd to the Nerves, then 'tis the Production of all Sorrow. The Effects of Sensation teach, that Grief is always a Disposition communicated, and joyn'd to the Nerves; whence is manifest, that all Parts of the Body, for as much as they touch the Nerves, affect them and not otherways. Therefore the Liquids cannot grieve; for it is plain the ultimate Part is either of various Nerves, or Vessels containing the Liquid, and so conveying it upward to the Brain, or of the Nerves being consolidated, as the Hair, Nails; which there they do not grieve, where they are consolidated, but in the Root (or Principle) where the Liquid hitherto is contain'd. Therefore 'tis prov'd, That all the Parts of the Body may grieve consisting of Nerves of the first

Kind. All Parts consisting of Nerves of the second Kind, indeed, do not grieve, being consolidated.

3dly, In every vital Nerve, if the ultimate (or greatest) may be consider'd compar'd with the other, it is nothing but a Membrane, and constrains the Liquid, *quæ est ultima virgula, seu fasciculi finis*, and containeth the smallest, thinnest Liquid of all; but this Membrane (or thin Skin) is nervous; therefore the ultimate (or very End) consists of Fibres, not of hollow Solids; for that reason all Cause of Grief remains within this Solid; but 'tis demonstrated, that that Ultimate is made up of indefin'd small ones, and the same which is contain'd within the Liquid ought to be the least; and seeing that it is demonstrated by *Chymistry*, that all Salts and Oyls, &c. by Filtring may oft-times be separated from all Water; which may easily be conceiv'd, that such a very small and slender (or thin) Thing can be made so by the passing thro' the Straining of the Fibers, which ought to run thro' them, and at length to fall into the *ultimum extremum Albugineum*, that will not coagulate (or be thick) upon the Heat.

4thly, THEREFORE all Grief consists either in a Solid, or in a Liquid, or in both together.

5thly, ALL Mutation from the Cause of Grief whatsoever brought to the *Liquido Nervoso*; it verily may be brought, without the subsequent Sorrow; so that all Grief does not stay (or fasten) in a Liquid, but in the containing Membrane; therefore, I say, the Cause being known producing Grief or Sorrow, may be induc'd on that Part without the subsequent Dolor, or Sorrow; therefore Dolor doth not remain in a Liquid containing, but in the small Membrane, or thin Skin. And thus it is demonstrated, as it may be suppos'd, that the *Ultimum Nervum* is, $a \neq \epsilon$; if then I could draw

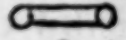
draw it by holding, it shall grieve one; if I should cut it moreover from one Part, I shall cause Grief and Sorrow; If I should again scour it from the $\#E$, there shall be great Grief; therefore all those which thus operate by Haling, or Drawing, Cutting, Straining, or Bruising, they make Grief, and they cause not any other thing in a Liquid, than that they do more compress, or loosen the Liquid, so as that it may be promoted, or retarded upon the Motion; and so the Contact might be chang'd, or alter'd, which is every Thing, which by Cutting, by Wasting, or Bruising, &c. it induceth, or goeth to a Nerve. If I can produce, or lengthen it out, in the contain'd Liquid, it shall not grieve, or vex us; for if a Nerve should be strain'd, then the Nerve chiefly is compress'd, and the Liquor contain'd stagnates, which is such, if it operate on a Nerve: In the same manner, if Water remains in a Leather-Pipe, and the Pipe be compress'd, if there should be in the Water, that which may but separate the Parts: Therefore do not stay in *Liquido Nervoso*, which is such, as was said before. Consequently all Causes howsoever they operate they cannot immediately produce Grief in it; but for as much as it indifferently affects this Liquid.

6tly, THEN all Dolor stays in some Alteration of the *Ultimi Solidi*, and when the Ultimate is a Nerve: Therefore Dolor shall always be in a Nerve from the Contact of a Liquid, and it may be supposed that Cavity, or Membrane, contains the vital Juice, otherwise it would not grieve, as in the Nails, the Hair, or if it grieves, it will not grieve before that it hath represented his conceiv'd Motion, to the Nerve fill'd with the Liquid; as if I apprehend a Hair simply, it doth not grieve, tho' it may be compress'd; But if I could draw it so as
it

it might come to his *Nervum suum Liquidum possidens*, it shall grieve: Therefore all Grief remains, if consider'd immediately in the Alteration (or Mutation) of the Contact, or the Cohesion in a Membrane, *Nervosum Liquidum vehente*.

7thly, THAT Dolor in what Nature soever it may be, can be determined by Experiments alone. For if I ask a sick Person; What he suffers (or undergoes) he can say no otherwise, than that he thought his Trouble cannot be unless, it is by a Knife stabb'd in his Body, &c. Hence the Cause of Grief cannot be conceiv'd *a priori*, for which Reason the Causes of bringing Sorrow and Grief are innumerable: Therefore all History teaches that Grief may be in that Part, when or where from any Action, a Fibre is so mov'd *ut manente, sic stante à sua Cohæsione cogatur*, all Men are of Opinion in that, as if a Fibre should be so mov'd, and the Motion should be continued, then the Fibre by Reason of the great Violence brought (upon it) should move or pass from his own Place, such is every Instrument that is Wounding, Cutting, Pricking, *aut secans, seu id fiat Distendendo, seu scindendo*, &c. if it shall be so continued, or last long, by such an Instrument, always Destruction of the whole happens, and in the End shall have a Gangrene, as in gouty Persons, *qui in Ultimis habent Callum, vel Saphum*, in which is a *Calx* like to the Ashes of burnt Animals. And this is the end of this nervous Grief: Therefore all Grief cometh of Straining (or great Effort) and this Effort causeth a Fibre to be distended, *vel Scindentem*, or cleft asunder, shall be a Cause of Sorrow, (or Grief) and that which abbreviates the Cause, shall be an Opiate.

8thly, THEREFORE if the Ultimate Fibre is understood, it shall be no other Thing but a certain freight

straight Mathematical Line; for every ultimate Nerve hath his ultimate Membrane: Therefore the Parts constituting this will be Fibres, or *lineæ rectæ* not having a Cavity. If now the State of a Fibre is such, there may be made infinite Mutations; now the *Ultimum Extremum* is drawn into this Part, then into that Part, now into both together; just now equally, now again unequally; now in a Medium, &c. as the End or Extrems may be seen now upwards, now downwards, &c. and so all Pain is made by Drawing: But if a Fibre is consider'd being compacted into the Pipe *A*  *B*, here follows, when it can be no more in a straight Line, when as some Cavity may fall into the Matter flowing within, is the cause of Grief, which is apply'd in the midst of the Tube, may press it, and so by bringing Violence in the middle Point, exciteth Dolor, and may extend the Tube, and Nerve, in such a manner as this: as if I would distend, or stretch, a Line by hanging a Weight at it, and so consequently all the Fibres *componentes nervum tubum patientur*; therefore they operate in the like Cause, in a twofold manner, *viz.* 1st. Either by Wounding, or Distending, and by Pressing, as in an Inflammation: Or 2^{dly}, By Drawing the extream Parts from one another; by which greater Wounds, are understood with a Lance, &c. by greater Acrimonies whatsoever, and these the Causes to which a Nerves shall seem to be fix'd to, may grieve: Therefore there are infinite Sorrows, and infinite Degrees of Sorrows; now curable, now incurable; for which Cause all Fracture, or Drawing, may cause a Grief, by lengthening out the Fibres in the Body; yea, in the most sound Body, all external Causes do demonstrate. E. G. Executioners, if they extend Malefactors on the



the Rack, they perceive a cruel Pain and Grief, which notwithstanding may cease again, if the Fibres are remitted *ad se invicem*. Hence it seems to me that cruel Pain may be in the Elongation of a Nerve, and may immediately be abated by Relaxation, and Emollients. In the first Place, all Distension is perform'd by a Liquid propulsing it in the Vessel; for so the History of *Physick* teacheth. For no Part from (or by) distending doth grieve, unless it swell; the Tumour ceasing, the Dolor ceaseth; for if it should be in the extream Nerves, from an external Cause, the Tumour is not perceiv'd; for the Knowledge (or Skill) in *Physick* shews, if one Pipe be fix'd *ab utrisque extremitatibus à quacunq; causa inexistente*, it may be press'd, the *Lateræ*, or Sides, are distended, the Superficies will be increas'd, and the Fibres are lengthen'd, and when also it may be so in our Vessels, Grief must be excited. In the first Place, all Vulneraries, whether with Pricking, Cuting, or Bruising, they make much Grievance; because now they shall dissolve, whilst then they shall lengthen a Fibre; if now a Lance should be apply'd, then it causeth Dolor, when a Fibre, or Nerve yields to it, and so it may be lengthen'd, altho' by this lengthening it is distended, and grieveth, but if it is cut off quick at one Stroke, it will not grieve us; therefore a Nerve being cut off, doth not grieve *dum semilacerus*.

9thly, WATER, and all Acrids that are visible, operate in the same manner, and their Operation dependeth only so far as they are endu'd with greater, or more Particles. Hence is the Operation of all Acrids, and the vulgar People do not understand how this Matter may be, then they think it to be spiritous which causeth Sorrow, in some Distempers therefore they do not consider it; E. G. The *Podargick* hath intollerable Grief in the Parts, here-

hereupon they will say, that it is of a spirituous Nature; but if it may be contemplated (or consider'd) it might be in the ultimate Fibres, because a Fibre, which is a thousand times less than a Hair, and so in like manner, it may grieve, as the whole Body may be rooted, and grow thereby, so it may be easily understood, that it is not a spiritous Thing, but in good Truth, Mechanick, which is an actual Acid, which operates upon a Nerve, and if here it might be cut off, it shall grieve no more.

10thly, HENCE all that is call'd Grief ceaseth. 1st, In destroying the Nerve in that Place where the Dolor is, the Place is destroy'd if the Liquid cannot run (or pass) thro' it, and to stretch and fill the Nerve.

11thly, THE Reason is, all Grief is taken off by intercepting the Communication of that Motion, which maketh Grief even to the *Sensorium commune* (or the Seat of common Sense) for it sticks in the Nerves of the Brain, not of the *Cerebellum*, which is manifest in an Apoplexy, in which the Application is intercepted, between the Part and the Brain, a free Communication of the Nerves remaining involuntary in the *Cerebellum*: Therefore the Respiration of the Pulse remains, the Excretion of the *Saliva*, the Secretion of the *Lympha*, &c. otherwise if the Brain is obstructed, or overwhelm'd, Death ensues: Hence the second Kind of Medicines shall be, if the Communication is taken away either by cutting off a Nerve, or by destroying it.

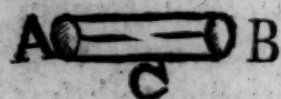
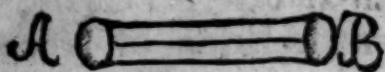
12thly, ALL Dolor is taken away. 3dly, The Brain being render'd unapt for Communication to entertain, or receive the dolorous Cause; for if any Man's Brain is marr'd, or injur'd, either by a Wound, or by any other Cause; If this
Man's

Man's Hands be burnt he don't feel it, *Subito hinc dicitur*, therefore there will be in *Unica Fibra Nervea ultima quacunq̃ue cerebri, ultimus gradus doloris partis talis Elongatione initium doloris*, and by how much greater, by so much the more sorrowful, or sad; and thus the Motion of the *Fibrillæ* is rais'd greater than was wont to be, as might be made thus far from unusual Causes, it will be a Degree of Dolor, and the Conception, or Titillation shall be most grateful, if from a vellicating external Cause, or Itching; if from an internal corroding acrid. From hence, a most sweet Odour, which maketh a very grateful Idea, or Conception, the more increas'd causeth Sorrow, as in Scent, or Smell, of Amber; Sweet Meats if they may be taken upon a Sound Tongue, they make a most delicious Taste, on the contrary they bite, or gnaw, upon the Tongue that is not Sound; the same is sweet in a sound Tongue, or Body, if it may be made more strong, we must say that Degrees of Dolor may in such a manner be detected.

Corol. HEREUPON the Grief of one Fibre regarded, or beheld, in itself, dependeth from the continued Elongation a long Time, and from no other Cause of the most supream Dolor; it depends from the Elongation of that Fibre, with a Ruption or Bursting; if the same might be in more Fibres, this Elongation will be a very great, or the highest, Sorrow, in the Cure. The Doctor's main Scope ought to be, to remove the proximate Cause, and he cannot remove it with tearing, or rending it: Therefore the Extension of the other Fibres is forbidden and hinder'd; and seeing there might be infinite Causes, then divers Cures must be instituted: Wherefore all Titles are clearly to be expos'd, if the
the

the Dolor arise from the Extension of a Fibre, viz. By Traction, or vulnerating from an external Cause, then his Medicine shall be an Ablation of the Cause, V. G. If the Dolor may be from Fire, his curing it must be of the removing of the Fire, and so of other Cures; but we must treat of them here: I say therefore, That Dolor is owing to an external or internal Cause, and will either remain in the sound, or *semilacerate* Nerves; for since that the Instrument creating Sorrow and Grief, doth bring it forth, the Nerve remaining sound and whole, or half rent; and if afterwards this Instrument, or external Cause may be remov'd, the Dolor should remain, then the Cause is no more to be sought in the external Part, but in the internal. And this is a plain Case, because if the internal Cause shall not be rent and torn away, but only lengthen'd, the Elongation being taken away, the Grief ceaseth; but if the Dolor remaineth, then the Cause of this Dolor shall be an inordinate, or disorder'd, Circulation: If the external Cause hath torn it, and that may be half torn, in which Part it remains; but if contiguous, or in the Part adjoyning, it receiveth nothing from an Instrument, but from the Strength of Life distending this Nerve. From hence are two Things consider'd, of all Dolor, as well in the sound and whole as in the half torn Nerves; the Idea is absolv'd in the Distraction (or haling asunder) of a Fibre alter'd, or half torn: Therefore the Remedy will not be an Ablation of that Cause producing Grief, but whatsoever taketh away the Elongation of a Fibre: Therefore we have overcome all Causes consider'd, if the Dolor abides after the Removal of the external Cause, the Cause is to be sought for in the internal Parts, or in the Strength of Life: It may be imagin'd
in

in this Figure, that this Nerve consists of only two Threads, altho' it may be there are more then a Thousand, and it may be suppos'd to remain whole after external Sorrow. Now then here is no other thing but Elongation, which may be said as to be



half torn, or burst in two: Then therefore every Nerve is ty'd, or bound fast, and in two Parts that this may be so lengthen'd out as this Figure shews, for the contractile Force, or Power, is sent out, and endeavours towards A, and B, and so it draweth the whole Parts together; the Nerves so as the *Semilacerate* Fibres by reason of his contractile Power which tendeth towards his fix'd Point, together also extendeth the sound or whole Fibres, and when as the Part is taken away from this Nerve, the other Parts are forc'd to sustain more, than if the whole Nerve had remain'd sound and entire; and so too great an Elongation, is causing Sorrow: For if, as in Example, a thousand and ninety Fibres should be loosen'd, then the whole Frame will fall down into the thousandth Part of the remaining nervous Fibres, they ought to be more lengthen'd out, and to feel the Grief. *Hoc dicto,*

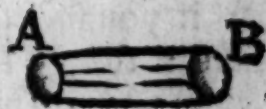
1st, THE distending of an Artery, Vein, *Lymphatick* Vessel, or Nerve, or any other Sort of Vessel, which at any time is detected, all may be from the free Conveyance of the Liquid being hinder'd, and with the Force of the Liquid pressing, or straining into the Conveyance, or *trajectile* Passage;



for it might be suppos'd thus in this Figure, that the Liquid is impeded in its Passage; then by reason of the Liquid pressing continually, follows *à tergo*; and that grieves

grieves the Vessel as being distended and elevated; and thus a Dolor is caus'd; and so all Dolor depends from an internal Cause, for as much as the Liquid cannot pass freely thro' the narrow Vessel, unless the Cause be corrosive. Now all the Conveyance is hinder'd in the Vessel, and without the Vessel, nothing can obstruct it but Narrowness. And this happens 1st, by Exsiccation, or drying up; for every single Fibre being exsiccated, by Consequence the Narrowness is shortned. Indeed such an Exsiccation shall produce Angustness; and so the Impediment of the Transflux is consequently with the Distention, and Elongation, and so comes a Dolor; and hence this is the greatest Dolor. If the Fibres are not well moisten'd, the *Stamina*, are contracted; hence it cometh to pass that these Dolours are incurable. 2^{dly}, By Compression; as in the binding of the Hand; so far as the Vessels are compress'd, a Straitness, or Narrowness, is produc'd in the Vessels, the Transflux *à tergo* is hinder'd, and the Liquid is constrain'd; therefore the *Vasa* are distended, and will cause a Dolor. Or

3^{dly}, by the Means of a Semilaceration, as represented by this Tube, if once 'tis torn, the broken Fibres fly back towards his Beginning, with



his Ends just as it happens in the Veins being cut asunder, they draw the sound and whole Parts rather *à se invicem*; and when the Ends of the torn Fibres are thus shorten'd, it must needs render the Passage in the Vessel more narrow. And the Exsiccation, as also the Compression produces the same Effect. Therefore no Solid can grieve, from Exsiccation, or *à Crispatura*, (or frizzling up) or with Compression, as in Laxation, and Distention

tion, or with a Semilaceration and all these operate together; therefore they do straiten the Vessels. There can be no other Cause of a Fluid, unless an obstructing one, which is by Grossness, or too dry and rough; for every Fluid ought to be thin and slippery, as it might pass thro'. Then all Imperfection of a Fluid ought to consist in Grossness, or Thickness, for it is not gross with too much Stiffness, as Oyl easily adheres, as in acute and sharp Darts fixing themselves, and about the End strengthening themselves, and so they make an Impediment in the Fluid, *à tergo sequente*; and so Distension is Dolor as in an Inflammation. And so again, all Obstructors only by the Power and Strength of Life may cause Grief. And therefore in either,

THE Cause is in the 1st Place, an unequal Traction, in the *Semilacerate* (Fibres) to which pertaineth the Distraction from an external Power.

2^{dly}, AN unequal Inflammation, as in the Cramp.

IN the 3^d Place, an unequal Distension from an impacted Acid, and with the vital Power constraining, either internal, or external: For if Oyl of Vitriol should be apply'd to the Hand, and it should be dead, it would not gnaw, or eat in; but if you should give an external, or internal Heat, then in the 1st Place it will it gnaw.

4^{thly}, AN Impaction, (or fastening) of an obstruction, from the Strength of the constraining insoluble Liquid.

5^{thly}, BY the Traction of the Nerves being prolong'd, properly thro' the Contractile Power, above any thing that obstructs, being rough, impacted, to be cleans'd out, as in the Stone, which does not grieve of itself; but for as much as when the Fibres are drawn beyond their Strength, if then from an half torn, and disabled Nerve, Dolor is induc'd, the Remedy shall be;

1st,

1st, AN intire Discission and Exustion (or Burning) of a Nerve; from hence 'tis said, That Iron and Fire cureth the greatest Grievs, the Reason will be plain to a prudent Person, which were spoke concerning a *Semilacerate* Nerve.

2^{dly}, THE Suction mutually of the Parts to themselves, from a sound Place, to a sickly one, if the Ends might draw to themselves by Turns; hence, as by a Ligature, in the greatest Dolors, either of the Muscle, or of the Hand, Grief shall disappear, by Bowing, or Bending; and otherwise, by tying the Hand with Garters, and so it ceaseth by too much Distension of the Fibres. Thus also all Dolor hath its Abatement from an injur'd Nerve for its Remedy; and so it may be done by a Suture, (or Stitching, or Seam) or Ligature.

3^{dly}, WITH Emolliation, and too much Laxation of the whole Nerve; for the Nerves are drawn asunder to the extream Parts; therefore because the Part affected is stronger, *quàm partes ad se invicem sani nervi*; wherefore if the Part may be loosen'd with farinacious Emollients, then the whole Nerve will become longer, and will not grieve, by reason of the Distension, is made equal. And in the same manner Emollients do heal, and are Relaxers upon the Pricking of a Nerve; but Wounds are the Sequel of that.

1st, WARM Water is the chiefeſt Basis (or Ground of the Matter) or a Mixture with one Part, and three or four Parts of warm Water, which enters the best into all the Parts.

2^{dly}, ALL emollient Decoctions, all farinacious Decoctions somewhat oily, or in the Species of an *Embroche*, or in the Nature of a Vapour, of a Bath, of a Cataplasm, or Fomentation.

A 2^d Kind, is all Balsamicks, the lightest Oyls, saponatious Medicines, v. g. Balsam of Peru, or

Gum *Elemi*; the chiefeſt Remedy is *Terebinth* and Yolks of Eggs; if theſe be joyn'd together, they wound, heat, and enter into the Nerves, they do greatly mollify and mitigate the Dolor.

A 3^d Kind, is the Parts of a ſound Animal apply'd in a Kind of a Fomentation, as alſo the griev'd Part being put into the Belly of a ſound Animal diſſected; as alſo Drink plentifully ſwallow'd, will appeaſe a Grief.

4^{thly}, THERE are Kinds of Remedies, which are Things nigh a-kin to a Wound, ſo as they may be alter'd, harden'd, and heated, and may withdraw, and break the mutual Cohesions; and Oyl of Turpentine, cheriſhing, or fomenting an injur'd Nerve, infus'd in Alcohol of Wine, pour'd hot into a Prick of any wounded Nerve; take three Parts of the Spirit, and one Part of the Turpentine; it is very pungent for the preſent, but rebates in a Moment. From hence 'tis plain, if a Dolor is profound, then it cannot be remov'd, unleſs with ſuch as may augment the Dolor; ſuppoſe for E. G. that there is on the back of the Hand the greateſt Dolor, that this Dolor will not ceaſe till the Nerve be broken; but when as this cannot be done, ſo the Dolor cannot be taken away; a ſecond Cauſe is from an unequal Determination, as in the Cramp, and it always ſticks either in the Brain, or in a Muſcle; and it will then have always an Acrid irritating, which determines unequally, and this ſhall follow, That infinite Cures are to be drawn from Diſtempers; for if there ſhall be an Acrid irriating, that is mobiloſ, it muſt be diluted, and the Dolor is to be mitigated always with a contrary Medicine; yea, moreover, in the greateſt Dolor of all Acrids, the drinking of warm Water is the *primum mobile* to expulſe a Dolor; But if it depends from a fix'd Cauſe, the
Cure

Cure must be sought from the Cause of the Disease. The third is from an impacted Acrid. And here many more might have been spoke of; but we may know from the Knowledge of acrid Things, that also there is no acrid Medicine that can operate together with an Acrid, but procure their Strength some other Way: Hence 'tis easily known that an impacted Acrid is either to be corrected, or brought out; and if neither can be done, we must bring him to Sleep, that is, to be corrected by the Ablation of the acrid Figure. This may be carry'd off either by composing, or involving, in breaking the Sharpness, by composing with some other Body, is done by opposite Salts, and invented Acrimonies, in the Likeness, E. G. of a mingled Alcaly, it shall be an Opposite, &c. By involving, is meant, when an obtuse Body is incorporated with some sharp one, and with this they make *Demulcents*, as may be seen in the Title of *Demulcents*. By breaking, is meant by Concoction, which is a Reduction of it to a sound Matter, (that is either in the Place, or Part) or in the whole Body, from whence all Things are become calm, and still; as Rhenish Wine is an Acrid, and so as it gnaws and bites the Eye; but in our Body it is mild; as moreover, it is convey'd thro' the Eye, and from it may be born, with, and this is done by Concoction only, or by breaking their Power, or their Length, with a sharp Thing. So also if Poyson be an Acrid, if it might become flexible, it is turn'd into a *Pus*, (or Corruption): but if the Vitiosity remains in the intimate Vessels, where there is no Space to assuage nor to mitigate, so as *Demulcents* cannot be convey'd thither, then no Comfort can be given; as in the Marrow: Hence there is so great a Stubbornness and Perseverance of Dolor. The same truly

is in all Dolors in the inward Parts, and from thence the greatest Dolor is always with a Signal, by reason of his Profundity; as in the *Podargick*, which is scarcely curable.

AN Acrid is to be drawn in a triple Manner; *1st*, In relaxing the Passages. Hence *Hipp.* says, That which takes away an Acrid, ought to be a Loosner. *2^{dly}*, By diluting the Liquids, as may be seen in the Title of *Diluters*. *3^{dly}*, In determining Things without; as you may see in the Title of *Attractors*. Therefore every Thing which Art has, as it may cure by the Eduction of Sorrow, consisteth in one Thing (or Body) compounded of three Things, because in relaxing the Passages, it happeneth that an acrid massy Matter falleth away thro' itself, as a Wedge sticking in Timber, the Piece of Timber may be enlarg'd in that Part wherein the Wedge is impacted, and it falls out of his own accord, afterwards if it be widen'd (or loosned) 'tis to be diluted; and if diluted, 'tis to be secreted by Attractors (or Medicines which draw); therefore an Acrid is to be vanquish'd two Ways; either *1st*, By taking away the Motion of the vital Liquids. *2^{dly}*, By contracting the Solids; for any Part whatsoever being Acrid, apply'd by itself, never doth hurt any one, except it may indeed be impacted; neither can it so operate, but a contrary Operation *à tergo sequens*, it rather fastens it, distending the Parts, so it causeth Dolor. Hence if the Strength or Power of Life is taken away, let the Acrids be what ones they will, they hurt not the Body, as in a dead Body; for if it may be conceiv'd, that a Thorn is there fix'd, it is call'd an Acrid; if, I say, it may likewise stick here, it will cause no Dolor, but the solid Parts being contracted, are apply'd to the Thorn, *hoc efficient*, and so commonly they ascribe the Dolor to the Thorn; when, as

I said just now, 'tis from the Contraction of a Solid only, *quia quasi è vectis spina ex una parte affixa, ex altera libera*, if this is either to be relax'd, or to be diluted, or Rest is to be procur'd to the Solids and Liquids. And this is done, 1st, By taking off the Notion of a Solid. Or 2^{dly}, By bringing on another. See the Title of *Attractors*. 3^{dly}, IN creating the Faintness of the Mind (or the Spirits) may grieve one; for howsoever if a Man shall be very feeble and faint, every Degree of Languishing will be a staying of Dolor, indeed it cannot be said to be done so here, but only as Grief is Mathematically demonstrated. 4^{thly}, There are external Causes exciting an Acrid by itself sluggish in his own Action; such as 1st, Heat. 2^{dly}, Moistness. 3^{dly}, Motion. If these Causes are took off, the Effect will cease; for it may be a saline Particle, if it might not be moist or hot, it cannot be a Motion of the Liquids, which shall apply the same to the Vessels, it does not operate, neither can it cause any Dolor. Hence it is said, that in the Semilacerate Vessels, the Cause of Dolor is an equal Traction (or Drawing), if, *viz.* from being obstructed towards the End of a Vessel, in provoking the Cavity it may be distended even to the bursting of some of the *Fibrillæ*, the Dolor shall be the more, if the Liquid coming *à tergo*, should be forc'd, and if that should stick in the *Vasa Sanguifera*, there will be an Inflammation, and in the *Lymphatick* ones, 'twill be *Dolor Adematofus*; if in the Nerves, *Dolor Nervofus*. Whatsoever causes Grief to arise, 'tis to be distinguish'd by the Place. As 1st, whatsoever relaxeth the Vessels. 2^{dly}, It resolves the Vessels of Infants. 3^{dly}, *Vim vitalem in obstructa minuit urgentem*, it shall be an *Anodine*; for it is suppos'd here by hindering, or obstructing, in this Case it has such an Acrid, especially as before, so far as the

Motion may be debilitated; for then the raising of a Vessel is diminish'd, or impair'd, *non impingit tantum moles*, the Strength, or Operation, following *à tergo*, is not so great; hence the Parts may *à se invicem facilius defilire*; and so being impacted, may the more easily run thro'. 2dly, All Evacuation, so that it is great. 3dly, All Derivation, or Draining, to another Part: of which other Parts we have spoke before. Hence follow all that cuts, or separates, Attenuators, Resolvers and Diluters. These constitute the first Class.

THE 2d Class shall be all Fomentations and Baths, whether internal or external: These absolutely remove these Distempers; for if any one should grieve thro' one Cause, or upon three Causes, if I would absolutely take off Grief, or Dolor, by being still and calm, whether it may be good or not; because oftentimes it is not convenient, if upon the Faintness of the Mind, or Spirit, I should let Blood, if I should make great Evacuations by internal or external Baths, by staying a Dolor by a Fomentation. But yet these are not absolutely commended, because 'tis question'd whether they appease a Dolor only.

Corol. THEREFORE 'tis plain, that there are Remedies, if they should be given according to the Emergency of the Cause, that is, if a Dolor should be asswag'd absolutely with one Medicine, it shall be done from these four spoken of; and this might be consider'd from the History of Diseases, whether it may be an impair'd Vessel, or whether it may be an obstructing Cause, or an Acrid, &c. which we must heed by Custom. Hence 'tis manifest why an internal Dolor is conspicuous, without a Tumour and Redness, &c. it can scarce be conquer'd by such a Mark.

2dly, WHEN all Dolours are Tumifying, and Rubifying, &c. being Heating, 'tis very easily taken away, when it may stick in the Vessels, in which a Determination may be made, if a Fibre may be drawn upon the *Aspera*; and here it may be cur'd with a Traction (or Drawing); these Impediments being spoke of in the impair'd Nerves, or Vessels.

3dly, It is done by relaxing the Passages. And this is already spoke of.

4thly, By Determination by Attractors. All these are already spoke of in the Title of *Semilacerate Vessels*.

A 2d Remedy is, that an obstructing Cause, or an Acrid be remov'd, or carry'd off. And that is made, 1st, By Diluters. 2dly, By *Incidentia*. 3dly, By *Propellentia*. And 4thly, By *Determinantia* to the Part, or Place where they are innocuous; and these are detected *de attrahentibus*. *Hocque est quod dicendum erat de Dolor*.

Now we must dispute the Cause, if the Dolor might be insupportable, it cannot be alleviated; then this Dolor so long as it shall last, just so long the urgent (or provoking) Cause shall be present, unless by destroying the Cause, the Dolor itself ceaseth; but if this can't be done, then Remedies are to be given, which tho' the Cause of Dolor may remain, and consequently the Dolor, these cause that it shall not be perceiv'd; *Hypnoticks*, and *Narcoticks*, or *Soporiferous*: These Medicines create a *Sopor*, or a dead Sleep, or they induce, or force, a sound Rest, by the Means of natural Causes, or not natural; the former are call'd so, which by taking away the Impediments of the natural Sleep, afterwards by the present Strength, or Power of Life, they produce, or prolong, Sleep. If the Sick Sleep, and by reason of the Heat, E. G. he should
muse

muſe too much, if I take away that Heat from him, hence it may be ſaid he ſleeps a natural Sleep again, the Cauſes for the moſt part are Diſturbances of external Objects, as Dolors, Heats, Sweats, Cares of the Mind, and Vexations; that which taketh away theſe Cauſes, ſhall be a *Soporiferous* Medicine, and very ſafe.

2dly, ARE thoſe which produce Sleep thro' *non* natural Cauſes, and indeed when as Men might not have ſlept a natural Sleep; and this is not obſerv'd by Authors. For if I come to a ſick Man, who by reaſon of the Heat *E. G.* cannot ſleep, and I drive off the Heat, if afterward he ſleepeth, I produce a natural Sleep; but if I give him *Opium*, then I do not cauſe him to ſleep a natural Sleep, if he had already ſlept eight or ten Hours; which Medicines taken out of the former, are infinite Medicines, and always are the very beſt and ſafeſt.

1ſt, HENCE Diluters, Reſolvers, Attenuators Demulcents, Humeſtors, Emollients, Relaxors and Califiers, are Medicines in Diſeaſes upon an Obſtruction.

2dly, INSPISSATING, Coagulating, Incraſſating, Exſiccating, Frigeſſives, are all Remedies in a contrary Caſe.

3dly, THE chief Acids, the greateſt Alcalies, Oily, Saponatious, Aqueous, and Vinous, & *Terreſtria*, and Earthy ones, are often Soporiferous in other Diſtempers, they take away the Cauſes of thoſe that cannot ſleep. *E. G.* In moſt acute Diſtempers, they ſay, that *Paracelſus* gave Drops of Spirit of Vitriol for a *Hypnotick*, and on no other Account, becauſe he erreth in giving an Alcaly. *Harris* in another Caſe ſays, in the Diſeaſes of Infants, he gave *Terreſtrials* to procure Sleep, and for no other Cauſe, by reaſon he offended with an Acid. But if I ſhould give Spirit of Vitriol to an Infant that abounds

abounds with an Acid. Certainly I should greatly err in my Judgment. From hence 'tis clear and plain, why Bland, Farinaceous, Emollients, all Relaxors, and all Vegetables, may be call'd *Sudorificks*, E. G. the Elder, Roses, the Willow, the Poplar, Garden Chervil, Violets rare (or early) ripe, ripe Fruits, Melons, Pompions, Cucumbers, Cedrulli, Rest-harrow, Lettice, Tonchus, Condilla, Wild-Succory, Water-Lily, Wood-Sorrel, external and internal in hot Distempers, they may be term'd Soporiferous Medicines; and why should we wonder at Endive and Lettice, for a chief Remedy; 'tis took on no other Account, but to take away the Impediments of Sleep. 'Tis evident also that *Sydenham* gave as a Remedy in the Small Pox, and Gangrenes, Spirit of Vitriol to procure Rest. From these 'tis manifest, why Aniseeds, *Camphire*, *Corrisa*, sweet-smelling Myrrh, Gilliflowers, and Storax; Medicines of an an odoriferous Perfume (or Scent) performing their internal Office, are call'd Soporiferous, and are indeed Contraries; for if you should give these to a sound Man, he will not sleep; but otherwise if given to a sick Man; therefore you must consider when and where they are to be apply'd, by taking an Account of the Cause.

HENCE 'tis expedient 3^{dly}, To observe why Attention is given to slow Musick, to pleasant Songs, or charming Lectures, why the Striking of a Clock, or the Ringing of Bells, &c. may be Soporiferous; the very best of all Medicines, if there should be an Impediment from the Thoughts vexing the Brain; but if it does attend (or give heed) to other Things, 'tis turn'd away, then that Thought fixeth the Mind; and seeing it may be a Thing of no Moment, this Attention may lull one to sleep; E. G. in counting the Dropping of a
Cock,

Cock, &c. and thus much concerning Determination, and Ablation of an Impediment; which we must chiefly study for in Practice; for these are the most safe to cure Distempers; therefore so happily in a Pleurisy, they may operate upon a Patient, if the Cause be a severe, rigid, acrid Matter, and shall hinder Sleep; it taketh away the Cause far better than *Opium*.

THE Causes now are such as in a violent manner produce Sleep, yea, truly, they operate by their own Strength, in oppressing the natural Causes of them that wake, or can't rest, which are expos'd in the Theory, which are Watchfulness, that is the State of the Brain, and Nerves, and Organs, thro' which a Change, or Alteration is made, *ab objectis externis*, even to the common Organs of Sense, and may be rightly continu'd to the smallest Discovery of the Understanding; a Determination may be upon the Muscles, and Senses, here Medicines have nothing else to operate upon, than that they should take away this State; for if E. G. a Man might be found and cannot sleep, otherwise it cannot be done, *quàm quòd tam mobile*, he may have the Nervous Juice, as it may continue his Motion as far as to the external Vessels, and thro' these again to the minutest Motion, may be determin'd to the Organs that are subject to the Will; if this Motion may be taken away, a Man shall be somewhat sleepy (or a Thing Sleeping) therefore he indeed taketh away this Cause of Watching from me, he maketh Sleep; and by how much the more he hastens that, by so much the more he produceth a greater Degree of Sleep, *viz.* a dead Sleep; and by so much the lesser Degree of a *Sopor*, which is a Dulness; when as it may so chance as it is not clearly perceiv'd, and so by Degrees at length it wholly becomes insensibility, and of such is a perfect

perfect Apoplexy; therefore the Power and Strength of Medicines flies from the Hebetude, or Dulness, to the highest Degree.

THEREFORE these Medicines are to be divided into three Classes.

1st, INTO Mild, Gentle, and Safe.

2^{dly}, INTO Stronger and more Hazardous.

3^{dly}, INTO Ill and Deadly.

To the 1st Class do mild Things belong; as Saffron, Poppy, Wild-Poppies, *vel Erraticum*, or the Wild in all their Kinds, which are the Seeds, Leaves, Heads, Juices and Roots, White-Poppy, or *Polypodium*, Daisies, Hound's-tongue, in every Part is comforting, and the sleepy, or soporiferous Nightshade, *blandum herba Paris*.

ACCORDING to the 2^d Class, are stronger ones, as the Seeds of Abutelan, *Theoph. ad 3j. experimen- to orient.* procures Sleep, which cannot be thrown off unless by the Snuffing of *Aceti distillati calidi*, Opium, and so do the Seeds of Henbane.

AND to the Third Class belong ill, and mortal ones, *Hyocyamus* (or Henbane) of both Kinds, the white and black, their Leaves, Roots, Juice of *Mandragoras* (or Mandrake) of both Kinds, of ripe Apples, the Flowers and Leaves, Juice of *Stramoniae*, or Thorn-Apple, either the Seeds given to 3j or two, of the Meal of Laurel, the Seeds of the *Funci acuti*, *Oxyosciamus* the Juice of it, the *Pomum aureum*, *solanum Lethale*, or deadly, Nightshade call'd *Bella donna*, *petum* or Tobacco also taken in too great a Plenty to them that use it not often, Spirit of Wine in too great Plenty produce the same; first they stagger, then they fall down, at length they become insensible, and are Apoplectick; these therefore are spoke of before in the Title of *Mitium*, they produce a natural mild sleep, and are easily rais'd up again, and that is call'd a natural

tural Sleep which is with Ease, and not any loud Snorting and Snoring, and may be soon awak'd.

WHAT may be express'd in the second Class, are Things producing a perpetual Sleep. Medicines not well directed by the unskilful, or Quacks, for a forc'd deep Sleep can scarce be awak'd again, with a very great Amazement, it is often said to be Mortal, when having the natural Functions suppress'd; it is produc'd by Violence, that is said to be very deep which is made with a loud Snoring, and cannot be rais'd with a Sound, or Noise, that is a *Stupor* of Sleep, and the greatest Hebetude, and I have seen Men to receive such Medicines as these nam'd, and could not open their Eyes.

WHAT belong to the third Class are what produce alike to that which are brought from Medicines of the second Class, and they convert at once the Judgment, Memory, the Reasoning, and Sense into a false and raging Opinion, and for the most Part, at length the true Sleep is thrown into terrible Convulsions, and at last into Death; for if they take the *Bella donna*, or the *solanum Furibundum*, or the *Pomum Amoris*, or give the Seeds, Men immediately begin to wax dull, then wonderfully to grow into *Delirium's*, and a little after to stagger, or Faulter in Memory, being bad Indications, and rambling Talk, at length they rage, Convulsions seize them, and they die, and Wine doth the same, and Spirit of Wine. Therefore hither they are reckoned, by Reason they that drink too much, reel and stagger, *eadem Phænomena primo dicta acquirunt*. I say therefore that all Soporiferous Medicines are known to operate as the Cause of an Apoplexy, For the Effects are summ'd up from that which is reduc'd; for if a Man may seem to be sound, lively, well set, sleeping after Labour, if you shall see the same Man after Drunkenness, like to one in an

an Apoplexy, or overwhelm'd with *Opium*, *non erit ullum signum inter hos*, and seeing that the *Phænomena* are either produc'd from the Cause receiv'd within the Body, bringing Insensibility and changing the Actions and Functions are the same, then the Cause also will be the same, injuring the Instruments; if so be a Degree may be distinguish'd, for he may seem to be Apopletick, in the first place he shall receive a Hebetude, or Dulness, Vertiginous, Vacillation, or Reeling, or Insensibility, somniferous, Defect of Memory, a Falling of the Body, Drowsyness, great Heat, a strong Pulse, a very great Respiration increasing with Spume, or Froth, snoring with Sweat, if he grow towards his End, the Pulse which before did increas, now sinketh, and the Respiration is weaker; Deaf, suffocates, and he should seem as a Man judg'd to be Drunk, or by some Empyrick, or Quack, impudently stupify'd with *Opium*, whether the same Symptoms may be accurately observ'd, and what is more to say, just as if Men arise from an Apopletick Fit, whence proceed Palsies, Foolishness, injur'd Memories, a Tumour, debilitate of Judgment, and as we have seen at any Time a drunken Man to rise up, or Infants to whom *Diacodium* hath been given, then *requies Nicolai*, or the Bark or Rind of white Poppy. These Chapters may be consulted again. The Reasons are, the intimated Symptoms are such as no one can in Verity deny.

I SAY 2dly, Therefore it shall be an efficacious Cause of the last Class of Soporiferous Medicines, like to the Cause producing an Apoplexy, when as from Practice, 'tis manifest that every Thing that can produce an Apoplexy, which does disorder, or confound the Influx of the Spirits, from the Beginning of these to the End, and again from the End to the Beginning, and if this may be done also in the *Cerebellum*, *quodque actum sit cum-*

cumque resurgentes ex Apoplexia, the Paralytick always stagger and shake, the same may be observ'd, and do become so by them that take *Opium*: Hence I conclude, *si ultima causa convenit*, therefore seeing that there may be infinite Causes of obstructing an Influx, so also there may be infinite Causes of *Opiats*, from a Compression, *viz.* of the Brain, from an Extravasation, from the Influx hinder'd toward the Brain, from a Reflux denied by an unequal Pressure, and from a Compression of the *Medulla Spinalis*, &c. Hence there can never an accurate or exact Account be had of the Acting or Operation, of *Opiats*; indeed the *Causa Medica* is defin'd, because truly it operates in stopping an Influx. If Men enquire how this may be, they may as well ask, How Sleep may be? when as hitherto there are then infinite Causes, it is impossible to define the determinate Cause of many Observations on human Bodies. For if those Authors may be read who certainly have written the most discreet Medicines already, for as much as they do reach this Cause; for some, as the *Galenicans*, allow, that it causeth a Chillness, or Frigidity; others say, That these Medicines operate as Sulphur; when as Sulphur doth rather hinder Sleep. Others say, It has the Effect of Poyson; but this is only from the Effect. Some said by these Medicines *profligari Spiritus excubias agentes*. Others think it binds the Spirits up. And at length *Piscarne* sharply shews, That *Opium* prevails by his Power, or Virtue, in Rarifying the Blood; because by such Means the Vessels may be distended, and consequently the Nerves may be compress'd, and they cause that the Spirits cannot have an Influx either into the Brain, or into the Body, & *egregiè quiddam*; but he should demonstrate, that this is the only Cause; which indeed he is not able to do, because there are many and innumerable

ble Causes; for the Famous B—, did see a Trial imprudently made with *Opium*, the Pulse being rais'd, and the Respiration increas'd, and by the taking away Eighteen Ounces of Blood; for all their Skill the sick Man did not awake. Now truly could this suppos'd Opinion of *Pitcarne* have taken place, then the Vessels will not be so distended; therefore they are all mistaken in this Thing, because they would reduce the Power of *Opiats* to one Cause, when as there are infinite.

Corol. If then an *Opiat* doth operate, as was said before, viz. by intercepting the Influx of the Spirits; oily *Opiats* do not correct, and set Things to rights, either in the Liquids or the Solids; that is, they alter nothing: From hence in all Dolor distending, or spreading itself, *Opiats* may obstruct; for then in these Parts there is an Inflammation, *Sicque relinquunt nil agendo in liquida causam agentem sed intercipiunt, solum spiritum, sicque privabimus magis causa expellente obstructi*; they say therefore that Grief consisteth only in a Nervous Kind; for seeing there is nothing but Velocity alone, here *Opium* operateth well; but after the greatest Evacuations being sent off before, lest the other Parts might perish, otherwise it taketh off the Flux of the Spirits, & *causa distendens relinquitur*.

FURTHERMORE, all Medicines do heal which spring from the Diseases of the *generis Nervosi*, as from such also as arise from too great Evacuations, which are known from a *Spasmodick* Grief; but if *Opium* shall be apply'd, as it may approach to the *genas Cerebelli*, it doth hurt, for a Dose cannot be determin'd; for that Reason the most celebrated Physicians have thought themselves unhappy that they did not know it; but it ought to be got by Experience. And I do not give one Grain of *Opium*, but I divide it into
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four

four Doses, that I may discover what Effect the former, or first Dose had made, and by that Means can direct the following Doses, or Dolors. *Neque tali modo eget corrective, nec calido frigido* \div \vdash *do*, &c. *Van Helmont* boasteth, that he gave it with Vinegar; as also *Tadenius* and *Galen*, with Saffron, and the rather, that it might operate more safe. I gave it dissolv'd; for else the Mass might remain undissolv'd; and then I could not know exactly how it would operate. In the last place, the Fault of *Opium* cannot be corrected, or taken away, (which is a Wonder) neither by Evacuations, nor by *V. S.* nor by any Thing else, save by the Fuming only from boiling distill'd Vinegar, and 'tis the only Thing; yet indeed not always; distill'd Vinegar may also be sprinkled on the Mouth; of it a Fomentation may be made for the Pulse and Temples of the Head.

THE History, or Relation, of *Opiats* being ended, as far as possibly could be; now follows the History of *Antidotes*.

CHAP. XLIX.

Of Antidotes.

ANTI signifies in *Greek* *contra*, a Dose signifies only the Remedy taken; likewise the one or only *Antidote*; therefore it shall be the only one against any Evil: But when they had observ'd that no Things, or Medicines, were more violent than Poysons, hence it is that they may call them *Antidotes* properly against Poysons.

'Αντεν signifies to drive away. *Pharmakon*, signifies *Medicamentum*, altho' the *Greeks* understood by *Pharmakon*, all *Catharticks* alone, when as they had

had no other. After a Beast was poyson'd; they respected no other for the Injury but White-Hellebore; and so on the contrary they used these Medicines with Effect; therefore they call'd them *Alexipharmick*, *Alexica*, *Alexiterica*, & à *Theriaca Bestia*, *ac si quasi contra Bestiam in vocabant*, in the same manner they nam'd them *enim Theriaca à Bestia Theriaca*, as it might be against the Stinging and Biting of venomous Beasts.

ALL these Titles they mark and set down. Those are Medicines which cure Poysons; we call'd *Venenum*, every thing which suddenly bringeth a Disease; from hence they call'd the Parts *Venenum*, &c. Death cometh by an Impediment, and taking away the Influx of the Spirits from the *Cerebellum*, and the *Cerebrum*, and the Blood being deny'd its Current or Recourse thither.

THEN in the 1st place the Blood ought always to be carry'd, or pass, to the Brain; therefore in this Place is the primary Cause of Poysons, or poysonous Things; consequently, when the Blood consisteth in the Circulation, whatsoever taketh from me the Circulation, suddenly it will be Poyson; for the Circulation is taken away four manner of Ways. 1st, By taking off the *vires motrices*. 2^{dly}, In destroying the Liquids. 3^{dly}, In spoiling the Vessels. 4^{thly}, By producing all these one by one, or else all together. *Vires tolli non possunt*, unless the Vessels are destroy'd; and likewise the Liquids cannot be destroy'd, except by the means of Coagulation; and this is a Grossness (or a Thickness alone) and no other Thing. For if it is an Acid Cause, it belongs to the 3^d Class, *viz. Ad Vasa destruentia*, to the spoiling of the Vessels. A *Coagulum* happeneth either in the Veins, as by taking of Medicines, or other Things, that may cause the like Effects, either in the Vessels or

Lungs, thro' the Breathings on them: If the same do not operate externally, it does not produce a *Coagulum*, unless it may be receiv'd in the Veins, likewise in the Lungs, as far as it passeth thro' the very Vessels; as a Draught of *Arsenick*, by which the Lungs are contracted (or drawn together) as I saw it in a Dog, which after the *Arsenick* was given him, and was dissected, he had his Lungs contracted. And now for as much as it operates here on the Solids, the Fluids operate *non relative ad vasa*, which operate also by Dissolving; they ought to draw off the Corruption in the Solids, the Vessels are destroy'd, and attracted by the Force, and Strength of the Poyson, either by gnawing (or eating in) or by inducing an Acrimony; for thus much they are constring'd and made narrow, when as it is from the Breathing of *Arsenick*, or after what manner they are eating into, or so far as an Acrid is brought upon the Liquid, as consequently the Vessel might be consum'd; for upon that a Solid may be fretted and gnawn; and as it must needs be done by the means of a Liquid contain'd in a Vessel, or without it; for I say, all the Vessels cannot be hurt, by reason they are too much constring'd or bound up; either these are gnawing an external Vessel, or fretting and gnawing an internal Vessel, made or caused thro' an acrid Liquid. I affirm again, All those that do constrict, or fret the minutest Vessels, or do coagulate or stagnate the Liquids, *sunt venena*; otherwise the Venom, or Poyson, cannot operate. Hereupon if it hath a sudden Effect, they term them *venena terribilissima*; if they move softly, they are call'd *venena lenta*. From hence therefore many take Effect *intra hæc venena*, so far as they disturb the Circulation. 2dly, By Secretion. 3dly, By provoking Excretion, *viz.* by a Stimulator, with a Cramp and Death;

Death; tho' oftentimes Death may not follow from a Constriction alone; but because from one of these three Heads, the Life is injur'd and destroy'd, hereupon the Effect of those following, is deadly, and mortal. Seeing therefore all Poysons may be reduc'd to these three Heads, *viz.* upon the operating in disturbing, or confounding, the Liquids. 2dly, In gnawing the Solids. 3dly, In coagulating the Liquids. Hence either it overflows the Liquids, and at the same time devours or gnaws the Solids, or coagulate them together, and others beyond them. Hereupon all *Antidotes* made known, truly altogether operate either in correcting the Poyson, or by expelling the Venom, or Poyson, or by fortifying the Vessels, or by temperating or abating the Violence, *viz.* in correcting of it, if it is an Acrid; that which is not an Acrid, by restoring and diluting the Viscid, &c. by expelling the Matter, by Vomit; in guarding, or fortifying; if E. G. I have a mind to handle Fire, if I do guard my Hands, it shall not burn them, by asswaging the Violence. It is clear, all Correctors do operate, either by asswaging, (See in the Title of *Demulcents*) or in taking the *Coagulum*. See in the Title of *Resolvers*, or *Relaxers*. E. G. Any one may take by Violence (or Force) φ Ω then if *Theriaca* is given him, he will die, *eroso Stomacho*. But it is *Alexipharmick*; because it is an Acrid, I ought to assuage it. See the Title of *Demulcents*. If the *Venenum* be an acid Alkali, 'twill be an *Antidote*; or if they induce a Strangury, and constrict, or bind up the Vessels, they shall be term'd demulcent *Antidotes*. Expulsers operate by expelling all Things thro' the Motion of Circulation; and warm Water with Salt, and Salt of Vitriol, and distill'd Vinegar drank (or a Draught of it) is the chiefeft *Antidote* against Poyson; it will excite

cite a Sweat, and it shall be *Alexipharmick*, known to the Ancients. The same Thing may be said of Milk, no Expulsion can be made by outward Means. See the Title of *Attractors*. What does fence and fortify the Vessels, are partly Saponaceous, and partly Oily; because the Strength, or Operation, is obtunded, or blunted; and for as much as the Poyson operates as Salt does, to which the Action is hinder'd, if Oyl be smear'd, or anointed on the Fibres; E. G. *Empericks* (or *Quacks*) if after taking Poyson, they take the *Orphietan*; first they take some Pounds of Oyl with an empty Stomach, so as it may besmear the Stomach, and the Intestines at that time; afterward when they take the Poyson, again they take some Ounces of Oyl; and so no Poyson hurteth; yea, it had not hurt, if they had not taken the *Orphietan*.

MEDICINES moderating the Violence, are all these recited, and *Opiats*, as far as by a Stimulator an Affection is made upon the Nerves; and by this Means, the Motion of the Circulation is obstructed, and hinder'd; then *Opium* hinders the Cramps. Hereupon if Poyson may be inflaming, *Opium* doth hurt; otherwise it causeth a very great *Diarrhœa*, or it shall produce Sweat.

It is seen from these, in all *Theriacks*, and *Antidotes* when as demulcent, to be expelling, to be fortifying a Vessel, and moderating the Violence, as in the *Electuaries* of *Dioscorides*, *Frassatus*, &c.

ANTIDOTES are simple or compounded. The Simple ones are of all Animals that are venomous, Worms of all venomous Salts, or Oyls, the Stones of those, or the small Stones of those concremented, and in this Class are *Trochisks* of a Viper, *Andromachæ*, or *Trochisks* of *Galen*, of Serpents of the *Italians*, Oyl of Toads, of Serpents, of Scorpions, of Frogs. And those are Poysons may be said

to be from Simples, as *Willis* cureth with Things given from Simples. If the Flesh of a Toad be taken into the Body, the *Lapis Bexoar*, the *Lapis Rupicaprae*, *Pietro del porco*, *lacryma lapidosa* (or the Weeping-Stone) the Eyes of a Hart. Now these are Simples of Vegetables, all which are call'd *Antidotes*, are such either as are constringent, as that from *Peru*, or *ex Pelu*, as Southernwood, Angelico. *N. B. Coralina*, *Corici Species*, *Carduus Benedictus*. On the contrary, *Fraxinella*, *diellamnus*, *album Asclepium*, from Minerals, these are Absorbents, as *Terra Sigillata*, Seeds. And in the last place, *Opium* Compounds are *Tberiaca*, *diatessaron Mesue*, an innocent *Sudorifick*, and the very best Medicine. An Electuary of the Juice of Rue, is simply good; an Electuary of Bay-berries, of Satyrion, of an Egg; and these are simple *Sudorificks*, or *Diaphoreticks*; afterward Confections of *Hyacinth* and *Alkermes*; all these are not hurtful. Now in the Conclusion, follows *Opiats*.

OPIATS, are the *requies Nicolai*, *Philonium Persicum*, *Arabicum Romanum*, *Diascordium*, *Mitbridatum*, *Tberiac*, and all these from hence are easily concluded: therefore there are not more grateful *Antidotes*; but they are made such, for as much as they prevail against a certain Opposite of a Disease; and then they ought for the most part to find out the Inclination of the Disease before-hand; E. G. It chanc'd in *Italy*, in a small City, that a Quack made known his *Orpbietan*; being an audacious Profligate, he carry'd the Delusion in his own Name, he marrying a Wife, and indeed the Daughter of a famous *Emperick*, who left him this *Arcanum* call'd *Mitbridate*, which Confection he sold on a publick Stage thro' all *Italy*, and *Germany*, at a Price high enough, shewing at once the Operation, by taking the Poyson himself, which his *Orpbietan* was to expell after he took it, so cal-

call'd from his own Name, he fortunately gain'd vast Sums of Money by it; nay, so much that he was a Companion for a Prince; but whilst at Venice, to demonstrate publickly the Goodness of his Orphietan, he requir'd of a Magistrate, that he would give him the strongest Poyson: He gave him *Arsenick* to take, which he immediately swallow'd down, not fortifying his Stomach beforehand with Oyl, he stole out of the World upon the Stage: Being dissected, a Gangrene was found in the Ventricle, but the *Antidote* remain'd. The Inclination of a Disease being known, & *Venena nostra applicanda, aliàs nil juvabant.*

Et hisce absoluta est tota pertractatio rei Medicæ, quod cedat ad Dei ter Optimi Maximi Gloriam & bonorem, totius & Reipublicæ Christianæ Emolumentum.

F I N I S.



